



Certificate of Participation

In recognition of

Thaddeus Thomas

for participating in

National Cyber League (NCL) Fall 2022 Individual Game

David Zeichick

David Zeichick, NCL Commissioner



Verify at cyberskyline.com/verify/X107V0UEQPU7

Cyber Skyline has verified this individual's participation in the NCL



Certificate of Participation

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Verify at cyberskyline.com/verify/6PDLF9UJDNC1

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Verify at cyberskyline.com/verify/J2DG30CT57BL

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Verify at cyberskyline.com/verify/6RVB7VGNLC01

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THE
NATIONAL
CYBER
LEAGUE

Certificate of Participation

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Verify at cyberskyline.com/verify/PB83FKNHM8FN

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Verify at cyberskyline.com/verify/GKW5HLWMXU7V

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A Community Where Cybersecurity Is a Passion

Thaddeus Thomas
thaddeus.r.thomas@gmail.com

NCL Fall 2022 Individual Game Scouting Report

Dear Thaddeus Thomas,

Thank you for participating in the National Cyber League (NCL) 2022 Fall Season! Our goal is to prepare the next generation of cybersecurity professionals, and your participation is helping achieve that goal.

The NCL was founded in May 2011 to provide an ongoing virtual training ground for collegiate students to develop, practice, and validate their cybersecurity skills in preparation for further learning, industry certifications, and career readiness. The NCL scenario-based challenges were designed around performance-based exam objectives of CompTIA certifications and are aligned to the National Initiative for Cybersecurity Education (NICE) Cybersecurity Workforce Framework published by the National Institute of Standards and Technology (NIST).

As you look to a future career in cybersecurity, we hope you find this report to be valuable in both validating skills and identifying areas for improvement across the nine NCL skills categories. You can use this NCL Scouting Report to:

- Validate your skills to employers in any job application or professional portfolio;
- Show case your achievements and strengths by including the Score Card view of your performance as part of your résumé or simply sharing the validation link so that others may view the detailed version of this report.

The NCL 2022 Fall Season had 7,690 students/players and 475 faculty/coaches from more than 470 two- and four-year schools & 250 high schools across all 50 U.S. states registered to play. The Individual Game Capture the Flag (CTF) event took place from October 21 through October 23. The Team Game CTF event took place from November 4 through November 6. The games were conducted in real-time for students across the country.

NCL is powered by Cyber Skyline's cloud-based skills evaluation platform. Cyber Skyline hosted the scenario-driven cybersecurity challenges for players to compete and track their progress in real-time.

To validate this report, please access: cyberskyline.com/report/H0Y7GEVAFAWG



CompTIA. Based on the the performance detailed in this NCL Scouting Report, you have earned **5 hours** of Continuing Education Units (CEUs) as approved by CompTIA. You can learn more about the NCL - CompTIA alignment via nationalcyberleague.org/comptia.

Congratulations for your participation in the NCL 2022 Fall Individual Game! We hope you will continue to develop your knowledge and skills and make meaningful contributions as part of the Information Security workforce!

David Zeichick
NCL Commissioner



NATIONAL CYBER LEAGUE SCORE CARD

NCL 2022 FALL INDIVIDUAL GAME

NATIONAL RANK
438TH PLACE
OUT OF 6675
PERCENTILE
94TH

YOUR TOP CATEGORIES

**OPEN SOURCE
INTELLIGENCE**
100TH PERCENTILE

CRYPTOGRAPHY
97TH PERCENTILE

FORENSICS
97TH PERCENTILE

62.6%

ACCURACY

Average: 68.2%

[cyberskyline.com/report](https://cyberskyline.com/report/H0Y7GEVAFAWG)
ID: H0Y7GEVAFAWG



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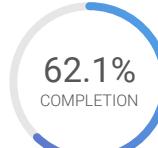
Thaddeus Thomas
thaddeus.r.thomas@gmail.com

NCL Fall 2022 Individual Game

The NCL Individual Game is designed for student players nationwide to compete in realtime in the categories listed below. The Individual Game evaluates the technical cybersecurity skills of the individual, without the assistance of others.

438 TH PLACE
OUT OF 6675
NATIONAL RANK

1560 POINTS OUT OF 3000
PERFORMANCE SCORE



94th National Percentile

Average: 816.7 Points

Average: 68.2%

Average: 35.0%

Cryptography

330 POINTS OUT OF 340

100.0% ACCURACY

COMPLETION:

100.0%

Identify techniques used to encrypt or obfuscate messages and leverage tools to extract the plaintext.

Enumeration & Exploitation

90 POINTS OUT OF 325

37.5% ACCURACY

COMPLETION:

21.4%

Identify actionable exploits and vulnerabilities and use them to bypass the security measures in code and compiled binaries.

Forensics

170 POINTS OUT OF 300

60.0% ACCURACY

COMPLETION:

50.0%

Utilize the proper tools and techniques to analyze, process, recover, and/or investigate digital evidence in a computer-related incident.

Log Analysis

160 POINTS OUT OF 320

40.0% ACCURACY

COMPLETION:

66.7%

Utilize the proper tools and techniques to establish a baseline for normal operation and identify malicious activities using log files from various services.

Network Traffic Analysis

180 POINTS OUT OF 360

42.9% ACCURACY

COMPLETION:

75.0%

Identify malicious and benign network traffic to demonstrate an understanding of potential security breaches.

Open Source Intelligence

300 POINTS OUT OF 300

100.0% ACCURACY

COMPLETION:

100.0%

Utilize publicly available information such as search engines, public repositories, social media, and more to gain in-depth knowledge on a topic or target.

Password Cracking

230 POINTS OUT OF 330

93.3% ACCURACY

COMPLETION:

77.8%

Identify types of password hashes and apply various techniques to efficiently determine plaintext passwords.

Scanning & Reconnaissance

0 POINTS OUT OF 300

0.0% ACCURACY

COMPLETION:

0.0%

Identify and use the proper tools to gain intelligence about a target including its services and potential vulnerabilities.

Web Application Exploitation

0 POINTS OUT OF 325

0.0% ACCURACY

COMPLETION:

0.0%

Identify actionable exploits and vulnerabilities and use them to bypass the security measures in online services.

Note: Survey module (100 points) was excluded from this report.



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Cryptography Module

Identify techniques used to encrypt or obfuscate messages and leverage tools to extract the plaintext.

229 TH PLACE
OUT OF 6675
NATIONAL RANK

330 POINTS OUT OF
340
PERFORMANCE SCORE

97th National
Percentile

Average: 177.8 Points



100.0%
ACCURACY

Average: 77.5%



100.0%
COMPLETION

Average: 63.3%

TOP NICE WORKROLES

Security Control Assessor
Secure Software Assessor
Exploitation Analyst
Cyber Operator
Security Architect

Decoding 1 (Easy)

30 POINTS OUT OF
30

100.0%
ACCURACY

COMPLETION:

100.0%

Identify the type of base encoding used and decode the data

Decoding 2 (Easy)

50 POINTS OUT OF
50

100.0%
ACCURACY

COMPLETION:

100.0%

Identify the cipher scheme used and decrypt the data

Decoding 3 (Easy)

40 POINTS OUT OF
40

100.0%
ACCURACY

COMPLETION:

100.0%

Identify the encoding scheme used and decode the data

Decoding 4 (Medium)

40 POINTS OUT OF
40

100.0%
ACCURACY

COMPLETION:

100.0%

Identify the encoding scheme used and decode the data

Decoding 5 (Hard)

40 POINTS OUT OF
50

100.0%
ACCURACY

COMPLETION:

100.0%

Identify the cipher scheme used and decrypt the data

Decoding 6 (Hard)

80 POINTS OUT OF
80

100.0%
ACCURACY

COMPLETION:

100.0%

Break the encryption on a trivial RSA encryption without the secret key

Steganography (Medium)

50 POINTS OUT OF
50

100.0%
ACCURACY

COMPLETION:

100.0%

Identify the steganography technique used and extract the hidden data



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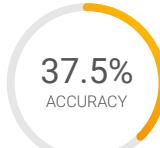
Thaddeus Thomas
thaddeus.r.thomas@gmail.com

Enumeration & Exploitation Module

Identify actionable exploits and vulnerabilities and use them to bypass the security measures in code and compiled binaries.

596 TH PLACE
OUT OF 6675
NATIONAL RANK

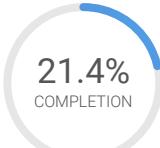
90 POINTS
OUT OF
325
PERFORMANCE SCORE



92nd National
Percentile

Average: 56.9 Points

Average: 41.5%



TOP NICE WORKROLES

Cyber Operator
Target Developer
Exploitation Analyst
Software Developer
Systems Security Analyst

Shell (Easy)

15 POINTS
OUT OF
100

100.0%
ACCURACY

COMPLETION:

50.0%

Analyze a shell script to identify its functionalities and vulnerabilities

Tracked (Medium)

75 POINTS
OUT OF
100

50.0%
ACCURACY

COMPLETION:

50.0%

Identify the keylogger installed on a remote Linux system and its configuration

NetCode (Hard)

0 POINTS
OUT OF
125

0.0%
ACCURACY

COMPLETION:

0.0%

Decompile a binary malware to identify its target environment and reverse engineer the Domain Generation Algorithm (DGA) to find the Command and Control (C2) server

Forensics Module

Utilize the proper tools and techniques to analyze, process, recover, and/or investigate digital evidence in a computer-related incident.

240 TH PLACE
OUT OF 6675
NATIONAL RANK

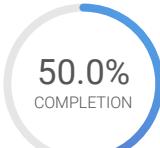
170 POINTS
OUT OF
300
PERFORMANCE SCORE



97th National
Percentile

Average: 100.0 Points

Average: 42.2%



TOP NICE WORKROLES

Cyber Defense Forensics Analyst
Cyber Crime Investigator
Cyber Defense Incident Responder
Cyber Defense Analyst

Stacked (Easy)

100 POINTS
OUT OF
100

100.0%
ACCURACY

COMPLETION:

100.0%

Extract additional files hidden in a photograph file using tools such as binwalk

Paper Trail (Medium)

0 POINTS
OUT OF
100

0.0%
ACCURACY

COMPLETION:

0.0%

Analyze a "counterfeit" bill to find the hidden Printer Machine Identification Code and identify the machine that printed the "counterfeit" bill

USB (Hard)

70 POINTS
OUT OF
100

50.0%
ACCURACY

COMPLETION:

66.7%

Recover and extract files from a filesystem image using tools such as Autopsy



Log Analysis Module

Utilize the proper tools and techniques to establish a baseline for normal operation and identify malicious activities using log files from various services.

573RD PLACE
OUT OF 6675
NATIONAL RANK

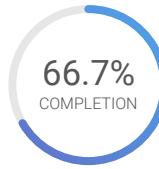
160 POINTS OUT OF
320
PERFORMANCE SCORE

92nd National
Percentile

Average: 107.6 Points



Average: 41.6%



Average: 41.7%

TOP NICE WORKROLES

Cyber Defense Analyst
Systems Security Analyst
All-Source Analyst
Cyber Defense Forensics
Analyst
Data Analyst

Compromise (Easy)

100 POINTS OUT OF
100

60.0%
ACCURACY

COMPLETION:

100.0%

Analyze a Linux kernel log to identify threat actor activity and backdoors

Access (Medium)

60 POINTS OUT OF
100

55.6%
ACCURACY

COMPLETION:

62.5%

Analyze a SSH server log to identify compromise attempts from threat actors

Minimal (Hard)

0 POINTS OUT OF
120

0.0%
ACCURACY

COMPLETION:

0.0%

Analyze a binary log format and calculate anomalies in the log

Network Traffic Analysis Module

Identify malicious and benign network traffic to demonstrate an understanding of potential security breaches.

476TH PLACE
OUT OF 6675
NATIONAL RANK

180 POINTS OUT OF
360
PERFORMANCE SCORE

93rd National
Percentile

Average: 125.6 Points



Average: 62.3%



Average: 49.6%

TOP NICE WORKROLES

Cyber Defense Analyst
All-Source Analyst
Cyber Defense Incident
Responder
Target Network Analyst
Cyber Operator

Retriever (Easy)

90 POINTS OUT OF
90

100.0%
ACCURACY

COMPLETION:

100.0%

Extract sensitive information from emails in an IMAP packet capture

WiFi Cracking (Medium)

60 POINTS OUT OF
70

71.4%
ACCURACY

COMPLETION:

100.0%

Identify vulnerable WiFi encryption scheme and crack the WiFi password

Trip to the Movies (Medium)

30 POINTS OUT OF
90

14.3%
ACCURACY

COMPLETION:

60.0%

Extract the video stream transferred in an RTP packet capture

Secret (Hard)

0 POINTS OUT OF
110

0.0%
ACCURACY

COMPLETION:

0.0%

Analyze and extract sensitive information from a covert DNS-based tunneling protocol in a comprehensive packet capture



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Open Source Intelligence Module

Utilize publicly available information such as search engines, public repositories, social media, and more to gain in-depth knowledge on a topic or target.

64 TH PLACE
OUT OF 6675
NATIONAL RANK

300 POINTS OUT OF 300
PERFORMANCE SCORE

100 th National Percentile

Average: 204.2 Points



Average: 79.4%



Average: 77.7%

TOP NICE WORKROLES
Systems Security Analyst
Target Developer
System Administrator
Research & Development Specialist
Cyber Intel Planner

Rules of Conduct (Easy)

15 POINTS OUT OF 15

100.0%
ACCURACY

COMPLETION:

100.0%

Introductory challenge on acceptable conduct during NCL

Bank Routes (Easy)

40 POINTS OUT OF 40

100.0%
ACCURACY

COMPLETION:

100.0%

Identify bank routing numbers using openly available information

Alley (Medium)

35 POINTS OUT OF 35

100.0%
ACCURACY

COMPLETION:

100.0%

Extract GPS coordinates from JPEG metadata to find where the photo was taken

GeoData (Medium)

50 POINTS OUT OF 50

100.0%
ACCURACY

COMPLETION:

100.0%

Utilize Geographic Information System (GIS) to identify land plot and owner data

Colonial Crypto (Medium)

60 POINTS OUT OF 60

100.0%
ACCURACY

COMPLETION:

100.0%

Uncover the redacted Bitcoin wallets in the 2021 Colonial Ransomware Attack

Info (Hard)

100 POINTS OUT OF 100

100.0%
ACCURACY

COMPLETION:

100.0%

Analyze an unknown identifier scheme to find the media metadata



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Password Cracking Module

Identify types of password hashes and apply various techniques to efficiently determine plaintext passwords.

348 TH PLACE
OUT OF 6675
NATIONAL RANK

230 POINTS OUT OF
330
PERFORMANCE SCORE

95th National
Percentile

Average: 133.7 Points



Average: 87.6%



Average: 50.1%

TOP NICE WORKROLES

Cyber Operator
Exploitation Analyst
Systems Security Analyst
Cyber Defense Incident
Responder
Cyber Crime Investigator

Hashing (Easy)

15 POINTS OUT OF
15

100.0%
ACCURACY

COMPLETION: **100.0%**

Generate password hashes for MD5, SHA1, and SHA256

Cracking 1 (Easy)

60 POINTS OUT OF
60

75.0%
ACCURACY

COMPLETION: **100.0%**

Crack MD5 password hashes

Cracking 2 (Easy)

60 POINTS OUT OF
60

100.0%
ACCURACY

COMPLETION: **100.0%**

Crack Windows NTLM password hashes using rainbow tables

Cracking 3 (Medium)

60 POINTS OUT OF
60

100.0%
ACCURACY

COMPLETION: **100.0%**

Build a wordlist or pattern config to crack password hashes of a known pattern

Cracking 4 (Hard)

35 POINTS OUT OF
135

100.0%
ACCURACY

COMPLETION: **33.3%**

Build a wordlist to crack passwords not found in common wordlists



Scanning & Reconnaissance Module

Identify and use the proper tools to gain intelligence about a target including its services and potential vulnerabilities.

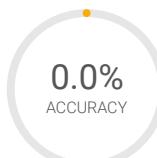
N/A

NATIONAL RANK

0 POINTS OUT OF 300

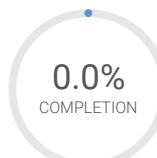
PERFORMANCE SCORE

Average: 115.0 Points



0.0%
ACCURACY

Average: 70.6%



0.0%
COMPLETION

Average: 31.3%

TOP NICE WORKROLES

Vulnerability Assessment Analyst
Target Network Analyst
Cyber Operations Planner
Target Developer
Security Control Assessor

Looking Glass (Easy)

0 POINTS OUT OF 100

Scan a HTTP server to enumerate its contents and possible vulnerabilities

0.0%
ACCURACY

COMPLETION:

0.0%

Net Track (Medium)

0 POINTS OUT OF 100

Communicate with a text-based service using netcat/telnet

0.0%
ACCURACY

COMPLETION:

0.0%

Tracker (Hard)

0 POINTS OUT OF 100

Scan and analyze the results from an HTTP BitTorrent Tracker service

0.0%
ACCURACY

COMPLETION:

0.0%

Web Application Exploitation Module

Identify actionable exploits and vulnerabilities and use them to bypass the security measures in online services.

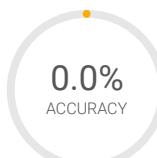
N/A

NATIONAL RANK

0 POINTS OUT OF 325

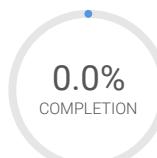
PERFORMANCE SCORE

Average: 74.9 Points



0.0%
ACCURACY

Average: 82.6%



0.0%
COMPLETION

Average: 40.2%

TOP NICE WORKROLES

Cyber Operator
Software Developer
Exploitation Analyst
Systems Security Analyst
Database Administrator

Tom's Fan Club (Easy)

0 POINTS OUT OF 100

Craft custom requests to a web server to uncover hidden pages

0.0%
ACCURACY

COMPLETION:

0.0%

Setup (Medium)

0 POINTS OUT OF 100

Identify and exploit a directory traversal vulnerability in nginx to download sensitive files from the web server

0.0%
ACCURACY

COMPLETION:

0.0%

Mystery (Hard)

0 POINTS OUT OF 125

Identify and exploit a SQL injection vulnerability to gain unauthorized access to a web server database

0.0%
ACCURACY

COMPLETION:

0.0%



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NCL Fall 2022 Team Game Scouting Report

Dear Thaddeus Thomas (Team "Shout IT Out Cloud"),

Thank you for participating in the National Cyber League (NCL) 2022 Fall Season! Our goal is to prepare the next generation of cybersecurity professionals, and your participation is helping achieve that goal.

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As you look to a future career in cybersecurity, we hope you find this report to be valuable in both validating skills and identifying areas for improvement across the nine NCL skills categories. You can use this NCL Scouting Report to:

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NCL is powered by Cyber Skyline's cloud-based skills evaluation platform. Cyber Skyline hosted the scenario-driven cybersecurity challenges for players to compete and track their progress in real-time.

To validate this report, please access: cyberskyline.com/report/7L673LF6F3T4



Congratulations for your participation in the NCL 2022 Fall Team Game! We hope you will continue to develop your knowledge and skills and make meaningful contributions as part of the Information Security workforce!

David Zeichick
NCL Commissioner



NATIONAL CYBER LEAGUE SCORE CARD

NCL 2022 FALL TEAM GAME

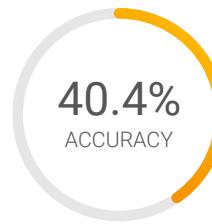
NATIONAL RANK
110TH PLACE
OUT OF 3926
PERCENTILE
98TH

YOUR TOP CATEGORIES

**ENUMERATION &
EXPLOITATION**
99TH PERCENTILE

**OPEN SOURCE
INTELLIGENCE**
98TH PERCENTILE

CRYPTOGRAPHY
98TH PERCENTILE



Average: 49.6%

[cyberskyline.com/report](https://cyberskyline.com/report/7L673LF6F3T4)
ID: 7L673LF6F3T4



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NCL Fall 2022 Team Game

The NCL Team Game is designed for student players nationwide to compete in realtime in the categories listed below. The Team Game promotes camaraderie and evaluates the collective technical cybersecurity skills of the team members.

110 TH PLACE
OUT OF 3926
NATIONAL RANK

1410 POINTS OUT OF
3000
PERFORMANCE SCORE



98th National
Percentile

Average: 649.5 Points

Average: 49.6%

Average: 28.8%

Cryptography

190 POINTS OUT OF
310

50.0%
ACCURACY

COMPLETION:

75.0%

Information is key, but it's not going to be easy to get it. Decipher these hidden messages to learn what is really going on.

Enumeration & Exploitation

115 POINTS OUT OF
300

100.0%
ACCURACY

COMPLETION:

50.0%

Identify actionable exploits and vulnerabilities and use them to bypass the security measures in code and compiled binaries.

Forensics

160 POINTS OUT OF
310

50.0%
ACCURACY

COMPLETION:

50.0%

Utilize the proper tools and techniques to analyze, process, recover, and/or investigate digital evidence in a computer-related incident.

Log Analysis

50 POINTS OUT OF
320

8.0%
ACCURACY

COMPLETION:

23.5%

Utilize the proper tools and techniques to establish a baseline for normal operation and identify malicious activities using log files from various services.

Network Traffic Analysis

210 POINTS OUT OF
370

54.8%
ACCURACY

COMPLETION:

81.0%

Identify malicious and benign network traffic to demonstrate an understanding of potential security breaches.

Open Source Intelligence

270 POINTS OUT OF
315

72.2%
ACCURACY

COMPLETION:

81.3%

Utilize publicly available information such as search engines, public repositories, social media, and more to gain in-depth knowledge on a topic or target.

Password Cracking

205 POINTS OUT OF
360

100.0%
ACCURACY

COMPLETION:

65.0%

Identify types of password hashes and apply various techniques to efficiently determine plaintext passwords.

Scanning & Reconnaissance

10 POINTS OUT OF
315

4.3%
ACCURACY

COMPLETION:

7.7%

Identify and use the proper tools to gain intelligence about a target including its services and potential vulnerabilities.

Web Application Exploitation

100 POINTS OUT OF
300

75.0%
ACCURACY

COMPLETION:

50.0%

Identify actionable exploits and vulnerabilities and use them to bypass the security measures in online services.

Note: Survey module (100 points) was excluded from this report.



POWERED BY
CYBER SKYLINE

The National Cyber League
A Community Where Cybersecurity Is a Passion

Thaddeus Thomas
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Cryptography Module

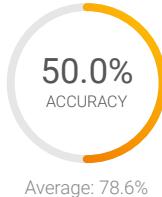
Information is key, but it's not going to be easy to get it. Decipher these hidden messages to learn what is really going on.

88 TH PLACE
OUT OF 3926
NATIONAL RANK

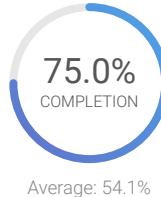
190 POINTS OUT OF
310
PERFORMANCE SCORE

98th National
Percentile

Average: 119.3 Points



Average: 78.6%



Average: 54.1%

TOP NICE WORKROLES
Security Control Assessor
Secure Software Assessor
Exploitation Analyst
Cyber Operator
Security Architect

Decoding 1 (Easy)

Identify the cipher scheme used and decrypt the data

30 POINTS OUT OF
30

100.0%
ACCURACY

COMPLETION:

100.0%

Decoding 2 (Easy)

Identify the cipher scheme used and decrypt the data

20 POINTS OUT OF
20

50.0%
ACCURACY

COMPLETION:

100.0%

Decoding 3 (Easy)

Identify the cipher scheme used and decrypt the data

35 POINTS OUT OF
35

100.0%
ACCURACY

COMPLETION:

100.0%

Decoding 4 (Medium)

Identify the communication scheme used and decode the message

20 POINTS OUT OF
20

50.0%
ACCURACY

COMPLETION:

100.0%

Decoding 5 (Medium)

Identify the cipher scheme used and decrypt the data

35 POINTS OUT OF
35

25.0%
ACCURACY

COMPLETION:

66.7%

Problem (Medium)

Identify the steganography technique used and extract the hidden data

50 POINTS OUT OF
50

50.0%
ACCURACY

COMPLETION:

100.0%

Magnetic (Hard)

Convert credit card magnetic stripe audio into numeric data

0 POINTS OUT OF
100

0.0%
ACCURACY

COMPLETION:

0.0%



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Enumeration & Exploitation Module

Identify actionable exploits and vulnerabilities and use them to bypass the security measures in code and compiled binaries.

75 TH PLACE
OUT OF 3926
NATIONAL RANK

115 POINTS OUT OF 300
PERFORMANCE SCORE



99 th National Percentile

Average: 52.0 Points

Average: 51.7%



Average: 27.7%

TOP NICE WORKROLES

Cyber Operator
Target Developer
Exploitation Analyst
Software Developer
Systems Security Analyst

Channels (Easy)

100 POINTS OUT OF 100

100.0%
ACCURACY

COMPLETION:

Analyze Go source code to identify its functionalities and vulnerabilities

Miner (Medium)

15 POINTS OUT OF 100

100.0%
ACCURACY

COMPLETION:

Decompile a binary crypto-miner malware to identify its functionalities

Password Manager (Hard)

0 POINTS OUT OF 100

0.0%
ACCURACY

COMPLETION:

Decompile and analyze a binary that implements a virtual machine (VM) for a custom instruction set architecture (ISA) and break the encryption to a custom password manager program

Forensics Module

Utilize the proper tools and techniques to analyze, process, recover, and/or investigate digital evidence in a computer-related incident.

99 TH PLACE
OUT OF 3926
NATIONAL RANK

160 POINTS OUT OF 310
PERFORMANCE SCORE



98 th National Percentile

Average: 106.1 Points

Average: 57.8%



Average: 26.7%

TOP NICE WORKROLES

Cyber Defense Forensics Analyst
Cyber Crime Investigator
Cyber Defense Incident Responder
Cyber Defense Analyst

Blocked (Easy)

100 POINTS OUT OF 100

100.0%
ACCURACY

COMPLETION:

Analyze a redacted PDF file to identify techniques to remove the redaction

Hiding (Medium)

0 POINTS OUT OF 100

0.0%
ACCURACY

COMPLETION:

Identify the compressed data stream without header metadata

Unknown (Hard)

60 POINTS OUT OF 110

44.4%
ACCURACY

COMPLETION:

Analyze a ZFS pool to extract hidden files and metadata



Log Analysis Module

Utilize the proper tools and techniques to establish a baseline for normal operation and identify malicious activities using log files from various services.

282nd PLACE
OUT OF 3926
NATIONAL RANK

50 POINTS
OUT OF
320
PERFORMANCE SCORE



93rd National
Percentile

Average: 63.6 Points

Average: 26.9%

Average: 23.6%

TOP NICE WORKROLES

Cyber Defense Analyst
Systems Security Analyst
All-Source Analyst
Cyber Defense Forensics
Analyst
Data Analyst

Cubes (Easy)

50 POINTS
OUT OF
100

9.5%
ACCURACY

COMPLETION:

57.1%

Analyze a DNS server log to identify potentially malicious domains

Lunch (Medium)

0 POINTS
OUT OF
100

0.0%
ACCURACY

COMPLETION:

0.0%

Analyze a web server log using MessagePack encoding and identify anomalies

Collection (Hard)

0 POINTS
OUT OF
120

0.0%
ACCURACY

COMPLETION:

0.0%

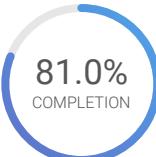
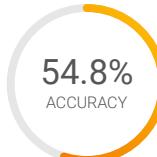
Analyze employee badge and motion sensor logs to compute outliers and identify anomalous behavior

Network Traffic Analysis Module

Identify malicious and benign network traffic to demonstrate an understanding of potential security breaches.

139th PLACE
OUT OF 3926
NATIONAL RANK

210 POINTS
OUT OF
370
PERFORMANCE SCORE



97th National
Percentile

Average: 111.9 Points

Average: 41.6%

Average: 46.4%

TOP NICE WORKROLES

Cyber Defense Analyst
All-Source Analyst
Cyber Defense Incident Responder
Target Network Analyst
Cyber Operator

VPN (Easy)

60 POINTS
OUT OF
100

35.0%
ACCURACY

COMPLETION:

77.8%

Extract sensitive information transferred in a VPN packet capture

WiFi Cracking (Medium)

30 POINTS
OUT OF
70

75.0%
ACCURACY

COMPLETION:

75.0%

Identify vulnerable WiFi encryption scheme and crack the WiFi password

Kick Back (Medium)

100 POINTS
OUT OF
100

100.0%
ACCURACY

COMPLETION:

100.0%

Analyze the unencrypted IOT device traffic to extract personal information from a smart home packet capture

Extraction (Hard)

20 POINTS
OUT OF
100

100.0%
ACCURACY

COMPLETION:

66.7%

Identify and extract the hidden RTMP video stream transferred in a comprehensive packet capture



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Open Source Intelligence Module

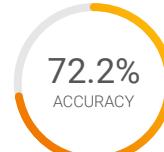
Utilize publicly available information such as search engines, public repositories, social media, and more to gain in-depth knowledge on a topic or target.

85TH PLACE
OUT OF 3926
NATIONAL RANK

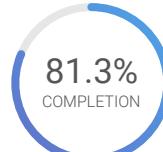
270 POINTS OUT OF 315
PERFORMANCE SCORE

98th National Percentile

Average: 150.0 Points



Average: 49.7%



Average: 65.4%

TOP NICE WORKROLES
Systems Security Analyst
Target Developer
System Administrator
Research & Development Specialist
Cyber Intel Planner

Rules of Conduct (Easy)

25 POINTS OUT OF 25

83.3% ACCURACY

COMPLETION:

100.0%

Introductory challenge on acceptable conduct during NCL

Defense Acquisition (Easy)

45 POINTS OUT OF 45

50.0% ACCURACY

COMPLETION:

100.0%

Identify the common organizations responsible for purchases for the government

Vehicle (Easy)

50 POINTS OUT OF 50

100.0% ACCURACY

COMPLETION:

100.0%

Utilize reverse image search tools to identify the make and model of a vehicle

Targets (Medium)

0 POINTS OUT OF 45

0.0% ACCURACY

COMPLETION:

0.0%

Investigate an unknown number scheme to identify the IP address associated with the number

District (Medium)

50 POINTS OUT OF 50

75.0% ACCURACY

COMPLETION:

100.0%

Utilize Geographic Information System (GIS) to identify land plot and owner data

Tracking (Hard)

100 POINTS OUT OF 100

100.0% ACCURACY

COMPLETION:

100.0%

Investigate commonalities in the locations from a sequence of GPS coordinates to identify the potential next target location



Password Cracking Module

Identify types of password hashes and apply various techniques to efficiently determine plaintext passwords.

142 ND PLACE
OUT OF 3926
NATIONAL RANK

205 POINTS OUT OF
360
PERFORMANCE SCORE

97th National
Percentile

Average: 123.5 Points



100.0%
ACCURACY

Average: 87.0%



65.0%
COMPLETION

Average: 39.5%

TOP NICE WORKROLES

Cyber Operator
Exploitation Analyst
Systems Security Analyst
Cyber Defense Incident
Responder
Cyber Crime Investigator

Cracking 1 (Easy)

45 POINTS OUT OF
45

100.0%
ACCURACY

COMPLETION: 100.0%

Crack MD5, SHA1, and SHA256 password hashes

Cracking 2 (Easy)

45 POINTS OUT OF
45

100.0%
ACCURACY

COMPLETION: 100.0%

Crack Windows NTLM password hashes using rainbow tables

Cracking 3 (Medium)

60 POINTS OUT OF
60

100.0%
ACCURACY

COMPLETION: 100.0%

Build a wordlist or pattern config to crack password hashes of a known pattern

Cracking 4 (Hard)

55 POINTS OUT OF
100

100.0%
ACCURACY

COMPLETION: 66.7%

Build a wordlist to crack passwords not found in common wordlists

PPTX (Medium)

0 POINTS OUT OF
50

0.0%
ACCURACY

COMPLETION: 0.0%

Crack the password for a protected PowerPoint file

WiFi (Hard)

0 POINTS OUT OF
60

0.0%
ACCURACY

COMPLETION: 0.0%

Crack the password hashes stored in a Linux wpa_supplicant.conf file



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Scanning & Reconnaissance Module

Identify and use the proper tools to gain intelligence about a target including its services and potential vulnerabilities.

202ND PLACE
OUT OF 3926
NATIONAL RANK

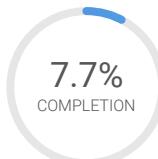
10 POINTS
OUT OF
315
PERFORMANCE SCORE

95th National
Percentile

Average: 33.4 Points



Average: 19.0%



Average: 9.3%

TOP NICE WORKROLES
Vulnerability Assessment
Analyst
Target Network Analyst
Cyber Operations Planner
Target Developer
Security Control Assessor

Catch Me If You Can (Easy)

Scan the available UDP ports on a target system

0 POINTS
OUT OF
100

0.0%
ACCURACY

COMPLETION:

0.0%

Interstellar (Medium)

Scan an InterPlanetary File System (IPFS) server and retrieve a file from the service

0 POINTS
OUT OF
100

0.0%
ACCURACY

COMPLETION:

0.0%

Tracker (Hard)

Scan and analyze the results from an UDP BitTorrent Tracker service

10 POINTS
OUT OF
115

100.0%
ACCURACY

COMPLETION:

12.5%

Web Application Exploitation Module

Identify actionable exploits and vulnerabilities and use them to bypass the security measures in online services.

162ND PLACE
OUT OF 3926
NATIONAL RANK

100 POINTS
OUT OF
300
PERFORMANCE SCORE

96th National
Percentile

Average: 59.4 Points



Average: 38.0%



Average: 29.5%

TOP NICE WORKROLES
Cyber Operator
Software Developer
Exploitation Analyst
Systems Security Analyst
Database Administrator

Ticket Scalper (Easy)

Exploit a ticket booking app by analyzing the partial logic in the browser side JavaScript code

100 POINTS
OUT OF
100

100.0%
ACCURACY

COMPLETION:

100.0%

Pesto's Pizza (Medium)

Identify and exploit a PHP type juggling vulnerability to gain unauthorized access

0 POINTS
OUT OF
100

0.0%
ACCURACY

COMPLETION:

0.0%

Mercury Lotto (Hard)

Identify and exploit a seeded random number generator by analyzing the deterministic server behavior

0 POINTS
OUT OF
100

0.0%
ACCURACY

COMPLETION:

0.0%



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NCL Fall 2023 Individual Game Scouting Report

Dear Thaddeus Thomas,

Thank you for participating in the National Cyber League (NCL) 2023 Fall Season! Our goal is to prepare the next generation of cybersecurity professionals, and your participation is helping achieve that goal.

The NCL was founded in May 2011 to provide an ongoing virtual training ground for collegiate students to develop, practice, and validate their cybersecurity skills in preparation for further learning, industry certifications, and career readiness. The NCL scenario-based challenges were designed around performance-based exam objectives of CompTIA certifications and are aligned to the National Initiative for Cybersecurity Education (NICE) Cybersecurity Workforce Framework published by the National Institute of Standards and Technology (NIST).

As you look to a future career in cybersecurity, we hope you find this report to be valuable in both validating skills and identifying areas for improvement across the nine NCL skills categories. You can use this NCL Scouting Report to:

- Validate your skills to employers in any job application or professional portfolio;
- Show case your achievements and strengths by including the Score Card view of your performance as part of your résumé or simply sharing the validation link so that others may view the detailed version of this report.

The NCL 2023 Fall Season had 9,770 students/players and 588 faculty/coaches from more than 520 two- and four-year schools & 280 high schools across all 50 U.S. states registered to play. The Individual Game Capture the Flag (CTF) event took place from October 20 through October 22. The Team Game CTF event took place from November 3 through November 5. The games were conducted in real-time for students across the country.

NCL is powered by Cyber Skyline's cloud-based skills evaluation platform. Cyber Skyline hosted the scenario-driven cybersecurity challenges for players to compete and track their progress in real-time.

To validate this report, please access: cyberskyline.com/report/7BQ9VMWCXBYU



CompTIA. Based on the the performance detailed in this NCL Scouting Report, you have earned **11 hours** of Continuing Education Units (CEUs) as approved by CompTIA. You can learn more about the NCL - CompTIA alignment via nationalcyberleague.org/comptia.

Congratulations for your participation in the NCL 2023 Fall Individual Game! We hope you will continue to develop your knowledge and skills and make meaningful contributions as part of the Information Security workforce!

Dr. David Zeichick
NCL Commissioner



NATIONAL CYBER LEAGUE SCORE CARD

NCL 2023 FALL INDIVIDUAL GAME

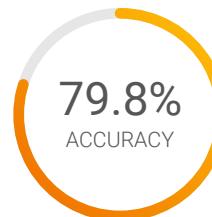
NATIONAL RANK
169TH PLACE
OUT OF 7879
PERCENTILE
98TH

YOUR TOP CATEGORIES

**SCANNING &
RECONNAISSANCE**
100TH PERCENTILE

**WEB APPLICATION
EXPLOITATION**
99TH PERCENTILE

**ENUMERATION &
EXPLOITATION**
99TH PERCENTILE



Average: 66.6%

[cyberskyline.com/report](https://cyberskyline.com/report/7BQ9VMWCXBYU)
ID: 7BQ9VMWCXBYU



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NCL Fall 2023 Individual Game

The NCL Individual Game is designed for student players nationwide to compete in realtime in the categories listed below. The Individual Game evaluates the technical cybersecurity skills of the individual, without the assistance of others.

169 TH PLACE
OUT OF 7879
NATIONAL RANK

1890 POINTS OUT OF
3000
PERFORMANCE SCORE



98th National
Percentile

Average: 654.9 Points

Average: 66.6%



Average: 30.1%

Cryptography

100 POINTS OUT OF
335

100.0%
ACCURACY

COMPLETION:

66.7%

Identify techniques used to encrypt or obfuscate messages and leverage tools to extract the plaintext.

Enumeration & Exploitation

210 POINTS OUT OF
350

100.0%
ACCURACY

COMPLETION:

81.8%

Identify actionable exploits and vulnerabilities and use them to bypass the security measures in code and compiled binaries.

Forensics

120 POINTS OUT OF
300

44.4%
ACCURACY

COMPLETION:

50.0%

Utilize the proper tools and techniques to analyze, process, recover, and/or investigate digital evidence in a computer-related incident.

Log Analysis

115 POINTS OUT OF
300

46.7%
ACCURACY

COMPLETION:

43.8%

Utilize the proper tools and techniques to establish a baseline for normal operation and identify malicious activities using log files from various services.

Network Traffic Analysis

180 POINTS OUT OF
350

75.0%
ACCURACY

COMPLETION:

66.7%

Identify malicious and benign network traffic to demonstrate an understanding of potential security breaches.

Open Source Intelligence

295 POINTS OUT OF
295

80.0%
ACCURACY

COMPLETION:

100.0%

Utilize publicly available information such as search engines, public repositories, social media, and more to gain in-depth knowledge on a topic or target.

Password Cracking

260 POINTS OUT OF
370

100.0%
ACCURACY

COMPLETION:

66.7%

Identify types of password hashes and apply various techniques to efficiently determine plaintext passwords.

Scanning & Reconnaissance

300 POINTS OUT OF
300

92.3%
ACCURACY

COMPLETION:

100.0%

Identify and use the proper tools to gain intelligence about a target including its services and potential vulnerabilities.

Web Application Exploitation

210 POINTS OUT OF
300

66.7%
ACCURACY

COMPLETION:

80.0%

Identify actionable exploits and vulnerabilities and use them to bypass the security measures in online services.

Note: Survey module (100 points) was excluded from this report.



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Cryptography Module

Identify techniques used to encrypt or obfuscate messages and leverage tools to extract the plaintext.

638 TH PLACE
OUT OF 7879
NATIONAL RANK

100 POINTS OUT OF
335
PERFORMANCE SCORE

92nd National
Percentile

Average: 90.5 Points



100.0%
ACCURACY

Average: 78.4%



66.7%
COMPLETION

Average: 59.4%

TOP NICE WORKROLES

Security Control Assessor
Secure Software Assessor
Exploitation Analyst
Cyber Operator
Security Architect

Bases (Easy)

30 POINTS OUT OF
30

100.0%
ACCURACY

COMPLETION:

100.0%

Obtain plaintext from messages encoded with common number bases

Shift (Easy)

30 POINTS OUT OF
30

100.0%
ACCURACY

COMPLETION:

100.0%

Analyze and obtain the plaintext for a message encrypted with a shift cipher

Earl (Easy)

40 POINTS OUT OF
40

100.0%
ACCURACY

COMPLETION:

100.0%

Obtain plaintext from messages encoded URL encoding

Rulebreaker (Medium)

0 POINTS OUT OF
60

0.0%
ACCURACY

COMPLETION:

0.0%

Decipher a classic book cipher and find its source material

Encrypted Flag (Hard)

0 POINTS OUT OF
75

0.0%
ACCURACY

COMPLETION:

0.0%

Recover the plaintext of an image that was encrypted with AES

Zoomers (Hard)

0 POINTS OUT OF
100

0.0%
ACCURACY

COMPLETION:

0.0%

Perform cryptanalysis and break a custom homophonic cipher



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Enumeration & Exploitation Module

Identify actionable exploits and vulnerabilities and use them to bypass the security measures in code and compiled binaries.

147 TH PLACE
OUT OF 7879
NATIONAL RANK

210 POINTS OUT OF
350
PERFORMANCE SCORE

99th National
Percentile

Average: 81.7 Points



Average: 56.1%



Average: 34.1%

TOP NICE WORKROLES

Cyber Operator
Target Developer
Exploitation Analyst
Software Developer
Systems Security Analyst

Everywhere (Easy)

80 POINTS OUT OF
80

100.0%
ACCURACY

COMPLETION:

100.0%

Analyze JavaScript source code to extract an insecurely stored authentication secret

UDP Hijack (Medium)

30 POINTS OUT OF
80

100.0%
ACCURACY

COMPLETION:

66.7%

Perform a session hijacking exploit by analyzing a custom network protocol

Throne (Medium)

90 POINTS OUT OF
90

100.0%
ACCURACY

COMPLETION:

100.0%

Analyze an obfuscated PowerShell malware using scheduled tasks

Hacktivate (Hard)

10 POINTS OUT OF
100

100.0%
ACCURACY

COMPLETION:

50.0%

Reverse engineer a compiled software program with anti-tamper features

Forensics Module

Utilize the proper tools and techniques to analyze, process, recover, and/or investigate digital evidence in a computer-related incident.

396 TH PLACE
OUT OF 7879
NATIONAL RANK

120 POINTS OUT OF
300
PERFORMANCE SCORE

95th National
Percentile

Average: 66.4 Points



Average: 40.3%



Average: 27.9%

TOP NICE WORKROLES

Cyber Defense Forensics
Analyst
Cyber Crime Investigator
Cyber Defense Incident
Responder
Cyber Defense Analyst

Run (Easy)

100 POINTS OUT OF
100

66.7%
ACCURACY

COMPLETION:

100.0%

Extract hidden files within an image using tools like binwalk

Download Manager (Medium)

20 POINTS OUT OF
100

33.3%
ACCURACY

COMPLETION:

40.0%

Perform binary data carving on a download manager's metadata file

Redacted (Hard)

0 POINTS OUT OF
100

0.0%
ACCURACY

COMPLETION:

0.0%

Programmatically un-blur text in an image to reveal redacted information



Log Analysis Module

Utilize the proper tools and techniques to establish a baseline for normal operation and identify malicious activities using log files from various services.

227TH PLACE
OUT OF 7879
NATIONAL RANK

115 POINTS OUT OF 300
PERFORMANCE SCORE



98th National Percentile

Average: 53.7 Points

Average: 36.9%



Average: 19.3%

TOP NICE WORKROLES

Cyber Defense Analyst
Systems Security Analyst
All-Source Analyst
Cyber Defense Forensics Analyst
Data Analyst

Attempt (Easy)

70 POINTS OUT OF 100

80.0%
ACCURACY

COMPLETION: 80.0%

Analyze Windows event logs to build a timeline of a malware attack

Oddity (Medium)

45 POINTS OUT OF 100

37.5%
ACCURACY

COMPLETION: 50.0%

Analyze a log file encoded with bencode to conduct statistical analysis of network requests

What the C (Hard)

0 POINTS OUT OF 100

0.0%
ACCURACY

COMPLETION: 0.0%

Develop a custom method for parsing a non-standard binary log file and conduct statistical analysis

Network Traffic Analysis Module

Identify malicious and benign network traffic to demonstrate an understanding of potential security breaches.

505TH PLACE
OUT OF 7879
NATIONAL RANK

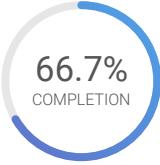
180 POINTS OUT OF 350
PERFORMANCE SCORE



94th National Percentile

Average: 100.5 Points

Average: 54.3%



Average: 37.5%

TOP NICE WORKROLES

Cyber Defense Analyst
All-Source Analyst
Cyber Defense Incident Responder
Target Network Analyst
Cyber Operator

Pong (Easy)

60 POINTS OUT OF 80

100.0%
ACCURACY

COMPLETION: 83.3%

Extract ICMP information from a packet capture

HTTPS (Medium)

40 POINTS OUT OF 100

40.0%
ACCURACY

COMPLETION: 40.0%

Decrypt and analyze an intercepted TLS packet capture

Cracking (Medium)

70 POINTS OUT OF 70

80.0%
ACCURACY

COMPLETION: 100.0%

Analyze a WPA-encrypted network and perform a wordlist attack on the password

Extraction (Hard)

10 POINTS OUT OF 100

100.0%
ACCURACY

COMPLETION: 33.3%

Recover data that was covertly exfiltrated in TCP sequence numbers



Open Source Intelligence Module

Utilize publicly available information such as search engines, public repositories, social media, and more to gain in-depth knowledge on a topic or target.

257 TH PLACE
OUT OF 7879
NATIONAL RANK

295 POINTS OUT OF 295
PERFORMANCE SCORE



97th National
Percentile

Average: 166.1 Points

Average: 70.7%

Average: 61.9%

TOP NICE WORKROLES
Systems Security Analyst
Target Developer
System Administrator
Research & Development Specialist
Cyber Intel Planner

Rules of Conduct (Easy)

15 POINTS OUT OF 15

100.0%
ACCURACY

COMPLETION:

100.0%

Introductory challenge on acceptable conduct during NCL

PGP Lookup (Easy)

45 POINTS OUT OF 45

75.0%
ACCURACY

COMPLETION:

100.0%

Query details of PGP public encryption keys shared online

Undersea (Easy)

70 POINTS OUT OF 70

77.8%
ACCURACY

COMPLETION:

100.0%

Conduct open-source target research on a public works project

Certificates (Medium)

45 POINTS OUT OF 45

75.0%
ACCURACY

COMPLETION:

100.0%

Query Certificate Transparency tools to audit historic TLS certificates

Electrified (Medium)

70 POINTS OUT OF 70

100.0%
ACCURACY

COMPLETION:

100.0%

Identify openly available information on EV charging infrastructure

Liber8tion v. Lawyers (Hard)

50 POINTS OUT OF 50

66.7%
ACCURACY

COMPLETION:

100.0%

Identify location of image through reverse image lookup and access publicly available government databases



Password Cracking Module

Identify types of password hashes and apply various techniques to efficiently determine plaintext passwords.

229 TH PLACE
OUT OF 7879
NATIONAL RANK

260 POINTS OUT OF
370
PERFORMANCE SCORE

98th National
Percentile

Average: 109.9 Points



Average: 87.0%



Average: 31.1%

Hashing (Easy)

20 POINTS OUT OF
20

100.0%
ACCURACY

COMPLETION:

100.0%

Generate password hashes for MD5, SHA1, SHA256, and SHA512

Rockyou (Easy)

45 POINTS OUT OF
45

100.0%
ACCURACY

COMPLETION:

100.0%

Crack MD5 password hashes for password found in the rockyou breach

Windows (Easy)

45 POINTS OUT OF
45

100.0%
ACCURACY

COMPLETION:

100.0%

Crack Windows NTLM password hashes using rainbow tables

Flag Format (Medium)

60 POINTS OUT OF
60

100.0%
ACCURACY

COMPLETION:

100.0%

Build a wordlist or pattern rule to crack password hashes of a known pattern

Cities (Medium)

90 POINTS OUT OF
100

100.0%
ACCURACY

COMPLETION:

90.0%

Build a wordlist to crack passwords not found in common wordlists

Red Carpet (Hard)

0 POINTS OUT OF
100

0.0%
ACCURACY

COMPLETION:

0.0%

Build a wordlist to crack passwords not found in common wordlists and augment with rules for special characters



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A Community Where Cybersecurity Is a Passion

Thaddeus Thomas
thaddeus.r.thomas@gmail.com

Scanning & Reconnaissance Module

Identify and use the proper tools to gain intelligence about a target including its services and potential vulnerabilities.

70 TH PLACE
OUT OF 7879
NATIONAL RANK

300 POINTS OUT OF 300
PERFORMANCE SCORE

100 th National Percentile

Average: 158.3 Points



Average: 60.7%



Average: 59.5%

TOP NICE WORKROLES
Vulnerability Assessment Analyst
Target Network Analyst
Cyber Operations Planner
Target Developer
Security Control Assessor

Scan (Easy)

100 POINTS OUT OF 100

100.0%
ACCURACY

COMPLETION:

100.0%

Scan a remote host for open ports and identify running services

Masscan (Medium)

100 POINTS OUT OF 100

85.7%
ACCURACY

COMPLETION:

100.0%

Analyze the results of a large scale Internet scan from the masscan tool

Message (Hard)

100 POINTS OUT OF 100

100.0%
ACCURACY

COMPLETION:

100.0%

Capture network traffic sent to a server using tools such as tcpdump

Web Application Exploitation Module

Identify actionable exploits and vulnerabilities and use them to bypass the security measures in online services.

117 TH PLACE
OUT OF 7879
NATIONAL RANK

210 POINTS OUT OF 300
PERFORMANCE SCORE

99 th National Percentile

Average: 69.1 Points



Average: 39.9%



Average: 26.1%

TOP NICE WORKROLES
Cyber Operator
Software Developer
Exploitation Analyst
Systems Security Analyst
Database Administrator

Witter (Easy)

100 POINTS OUT OF 100

100.0%
ACCURACY

COMPLETION:

100.0%

De-obfuscate client side JavaScript code and exploit a social media service

Login (Medium)

100 POINTS OUT OF 100

100.0%
ACCURACY

COMPLETION:

100.0%

Conduct SQL injection against an authentication service to sign in as admin

Cryptographic Lottery (Hard)

10 POINTS OUT OF 100

33.3%
ACCURACY

COMPLETION:

50.0%

Exploit a Hash-Based Message Authentication Code using an MD5 length extension attack



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NCL Fall 2023 Team Game Scouting Report

Dear Thaddeus Thomas (Team "Ctrl+Alt+Defeat"),

Thank you for participating in the National Cyber League (NCL) 2023 Fall Season! Our goal is to prepare the next generation of cybersecurity professionals, and your participation is helping achieve that goal.

The NCL was founded in May 2011 to provide an ongoing virtual training ground for collegiate students to develop, practice, and validate their cybersecurity skills in preparation for further learning, industry certifications, and career readiness. The NCL scenario-based challenges were designed around performance-based exam objectives of CompTIA certifications and are aligned to the National Initiative for Cybersecurity Education (NICE) Cybersecurity Workforce Framework published by the National Institute of Standards and Technology (NIST).

As you look to a future career in cybersecurity, we hope you find this report to be valuable in both validating skills and identifying areas for improvement across the nine NCL skills categories. You can use this NCL Scouting Report to:

- Validate your skills to employers in any job application or professional portfolio;
- Show case your achievements and strengths by including the Score Card view of your performance as part of your résumé or simply sharing the validation link so that others may view the detailed version of this report.

The NCL 2023 Fall Season had 9,770 students/players and 591 faculty/coaches from more than 510 two- and four-year schools & 270 high schools across all 50 U.S. states registered to play. The Individual Game Capture the Flag (CTF) event took place from October 20 through October 22. The Team Game CTF event took place from November 3 through November 5. The games were conducted in real-time for students across the country.

NCL is powered by Cyber Skyline's cloud-based skills evaluation platform. Cyber Skyline hosted the scenario-driven cybersecurity challenges for players to compete and track their progress in real-time.

To validate this report, please access: cyberskyline.com/report/J20325HDKKH7



Congratulations for your participation in the NCL 2023 Fall Team Game! We hope you will continue to develop your knowledge and skills and make meaningful contributions as part of the Information Security workforce!

Dr. David Zeichick
NCL Commissioner



NATIONAL CYBER LEAGUE SCORE CARD

NCL 2023 FALL TEAM GAME

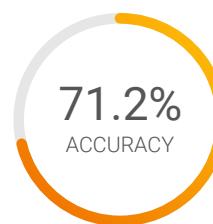
NATIONAL RANK
182ND PLACE
OUT OF 4672
PERCENTILE
97TH

YOUR TOP CATEGORIES

**ENUMERATION &
EXPLOITATION**
100TH PERCENTILE

**WEB APPLICATION
EXPLOITATION**
100TH PERCENTILE

**SCANNING &
RECONNAISSANCE**
98TH PERCENTILE



Average: 50.1%

[cyberskyline.com/report](https://cyberskyline.com/report/J20325HDKKH7)
ID: J20325HDKKH7



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A Community Where Cybersecurity Is a Passion

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thaddeus.r.thomas@gmail.com

NCL Fall 2023 Team Game

The NCL Team Game is designed for student players nationwide to compete in realtime in the categories listed below. The Team Game promotes camaraderie and evaluates the collective technical cybersecurity skills of the team members.

182nd PLACE
OUT OF 4672
NATIONAL RANK

1210 POINTS OUT OF 3000
PERFORMANCE SCORE



97th National Percentile

Average: 683.9 Points

Average: 50.1%

Average: 31.7%

Cryptography

130 POINTS OUT OF 335

87.5% ACCURACY

COMPLETION:

63.6%

Identify techniques used to encrypt or obfuscate messages and leverage tools to extract the plaintext.

Enumeration & Exploitation

120 POINTS OUT OF 300

100.0% ACCURACY

COMPLETION:

66.7%

Identify actionable exploits and vulnerabilities and use them to bypass the security measures in code and compiled binaries.

Forensics

120 POINTS OUT OF 300

71.4% ACCURACY

COMPLETION:

41.7%

Utilize the proper tools and techniques to analyze, process, recover, and/or investigate digital evidence in a computer-related incident.

Log Analysis

140 POINTS OUT OF 300

76.5% ACCURACY

COMPLETION:

72.2%

Utilize the proper tools and techniques to establish a baseline for normal operation and identify malicious activities using log files from various services.

Network Traffic Analysis

220 POINTS OUT OF 360

57.7% ACCURACY

COMPLETION:

75.0%

Identify malicious and benign network traffic to demonstrate an understanding of potential security breaches.

Open Source Intelligence

180 POINTS OUT OF 345

65.5% ACCURACY

COMPLETION:

86.4%

Utilize publicly available information such as search engines, public repositories, social media, and more to gain in-depth knowledge on a topic or target.

Password Cracking

50 POINTS OUT OF 360

100.0% ACCURACY

COMPLETION:

20.6%

Identify types of password hashes and apply various techniques to efficiently determine plaintext passwords.

Scanning & Reconnaissance

130 POINTS OUT OF 300

64.7% ACCURACY

COMPLETION:

64.7%

Identify and use the proper tools to gain intelligence about a target including its services and potential vulnerabilities.

Web Application Exploitation

120 POINTS OUT OF 300

100.0% ACCURACY

COMPLETION:

60.0%

Identify actionable exploits and vulnerabilities and use them to bypass the security measures in online services.

Note: Survey module (100 points) was excluded from this report.



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Cryptography Module

Identify techniques used to encrypt or obfuscate messages and leverage tools to extract the plaintext.

307 TH PLACE
OUT OF 4672
NATIONAL RANK

130 POINTS OUT OF
335
PERFORMANCE SCORE

94th National
Percentile

Average: 115.0 Points



Average: 59.3%



Average: 54.0%

TOP NICE WORKROLES

Security Control Assessor
Secure Software Assessor
Exploitation Analyst
Cyber Operator
Security Architect

Salad (Easy)

30 POINTS OUT OF
30

100.0%
ACCURACY

COMPLETION:

100.0%

Analyze and obtain the plaintext for a message encrypted with a rotation cipher

Beep Beep (Easy)

30 POINTS OUT OF
30

100.0%
ACCURACY

COMPLETION:

100.0%

Analyze and obtain the plaintext for a message encoded with Morse code

Someone Cooked (Medium)

0 POINTS OUT OF
50

0.0%
ACCURACY

COMPLETION:

0.0%

Analyze and obtain the plaintext for a message with multiple layers of encoding

Roots (Medium)

50 POINTS OUT OF
50

50.0%
ACCURACY

COMPLETION:

100.0%

Interpret the Logo programming language to extract hidden information

Pretty Good Signature (Hard)

0 POINTS OUT OF
75

0.0%
ACCURACY

COMPLETION:

0.0%

Identify fraudulent emails through the use of PGP signature verification

Boomers (Hard)

20 POINTS OUT OF
100

100.0%
ACCURACY

COMPLETION:

50.0%

Decipher the plaintext for a message encrypted with a Sudoku cipher



Enumeration & Exploitation Module

Identify actionable exploits and vulnerabilities and use them to bypass the security measures in code and compiled binaries.

35TH PLACE
OUT OF 4672
NATIONAL RANK

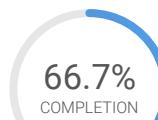
120 POINTS OUT OF 300
PERFORMANCE SCORE



100th National Percentile

Average: 58.8 Points

Average: 54.4%



Average: 33.2%

TOP NICE WORKROLES

Cyber Operator
Target Developer
Exploitation Analyst
Software Developer
Systems Security Analyst

Espionage (Easy)

100 POINTS OUT OF 100

100.0%
ACCURACY

COMPLETION:

100.0%

Be able to read and decipher OCaml Code and recognize bitwise operations

Bytecode (Medium)

20 POINTS OUT OF 100

100.0%
ACCURACY

COMPLETION:

66.7%

Decompile and analyze the bytecode for Ruby to reverse engineer the authentication scheme

Journal (Hard)

0 POINTS OUT OF 100

0.0%
ACCURACY

COMPLETION:

0.0%

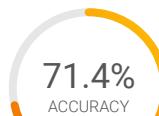
Reverse engineer a compiled binary and exploit a TOCTOU (Time-of-Check Time-of-Use) vulnerability to escalate user privileges

Forensics Module

Utilize the proper tools and techniques to analyze, process, recover, and/or investigate digital evidence in a computer-related incident.

121ST PLACE
OUT OF 4672
NATIONAL RANK

120 POINTS OUT OF 300
PERFORMANCE SCORE



98th National Percentile

Average: 63.0 Points

Average: 46.0%



Average: 26.8%

TOP NICE WORKROLES

Cyber Defense Forensics Analyst
Cyber Crime Investigator
Cyber Defense Incident Responder
Cyber Defense Analyst

Seek (Easy)

20 POINTS OUT OF 100

100.0%
ACCURACY

COMPLETION:

66.7%

Identify tampered files on an NTFS file system through forensic analysis of the Master File Table

Art (Medium)

100 POINTS OUT OF 100

60.0%
ACCURACY

COMPLETION:

100.0%

Reconstruct a file from a binary data stream by following the specification for a custom file format

The Book (Hard)

0 POINTS OUT OF 100

0.0%
ACCURACY

COMPLETION:

0.0%

Analyze and search through a live Windows memory dump to extract the SQL database from memory



Log Analysis Module

Utilize the proper tools and techniques to establish a baseline for normal operation and identify malicious activities using log files from various services.

236TH PLACE
OUT OF 4672
NATIONAL RANK

140 POINTS OUT OF
300
PERFORMANCE SCORE



95th National
Percentile

Average: 111.8 Points

Average: 42.2%

Average: 49.7%

TOP NICE WORKROLES

Cyber Defense Analyst
Systems Security Analyst
All-Source Analyst
Cyber Defense Forensics
Analyst
Data Analyst

Wardriving (Easy)

100 POINTS OUT OF
100

90.0%
ACCURACY

COMPLETION:

100.0%

Parse a wardriving log to identify WiFi and Bluetooth network beacons

Mobile (Medium)

10 POINTS OUT OF
100

33.3%
ACCURACY

COMPLETION:

20.0%

Dissect an Android log to identify historic user activity on the device

Za (Hard)

30 POINTS OUT OF
100

75.0%
ACCURACY

COMPLETION:

75.0%

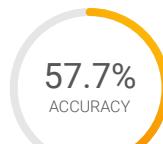
Analyze a Windows Sysmon log to identify the file that was covertly exfiltrated via DNS query packets

Network Traffic Analysis Module

Identify malicious and benign network traffic to demonstrate an understanding of potential security breaches.

181ST PLACE
OUT OF 4672
NATIONAL RANK

220 POINTS OUT OF
360
PERFORMANCE SCORE



97th National
Percentile

Average: 143.9 Points

Average: 37.5%

Average: 48.4%

TOP NICE WORKROLES

Cyber Defense Analyst
All-Source Analyst
Cyber Defense Incident Responder
Target Network Analyst
Cyber Operator

Next Gen (Easy)

90 POINTS OUT OF
90

62.5%
ACCURACY

COMPLETION:

100.0%

Analyze and identify the layout of an IPv6 network

The Webz (Medium)

100 POINTS OUT OF
100

66.7%
ACCURACY

COMPLETION:

100.0%

Analyze Border Gateway Protocol (BGP) traffic to identify automatic route discovery mechanisms

Router (Medium)

10 POINTS OUT OF
70

40.0%
ACCURACY

COMPLETION:

33.3%

Decrypt a WiFi packet capture and extract the contents of the network traffic

Looking Glass (Hard)

20 POINTS OUT OF
100

50.0%
ACCURACY

COMPLETION:

66.7%

Analyze and extract raw H.264 video from a wireless Android screen recording



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Open Source Intelligence Module

Utilize publicly available information such as search engines, public repositories, social media, and more to gain in-depth knowledge on a topic or target.

468 TH PLACE
OUT OF 4672
NATIONAL RANK

180 POINTS OUT OF
345
PERFORMANCE SCORE

90th National
Percentile

Average: 189.1 Points



TOP NICE WORKROLES
Systems Security Analyst
Target Developer
System Administrator
Research & Development Specialist
Cyber Intel Planner

Rules of Conduct (Easy)

25 POINTS OUT OF
25

100.0%
ACCURACY

COMPLETION:

100.0%

Introductory challenge on acceptable conduct during NCL

Park (Easy)

45 POINTS OUT OF
45

100.0%
ACCURACY

COMPLETION:

100.0%

Extract EXIF metadata from a JPEG file to determine geolocation

X Marks the Spot (Easy)

60 POINTS OUT OF
60

50.0%
ACCURACY

COMPLETION:

100.0%

Identify characteristics of the 2020 Twitter hack from government reports

Reputation (Medium)

40 POINTS OUT OF
40

40.0%
ACCURACY

COMPLETION:

100.0%

Reverse lookup IP addresses to identify the name of the VPN service providers

Airport (Medium)

10 POINTS OUT OF
75

100.0%
ACCURACY

COMPLETION:

50.0%

Identify the geolocation of an image without the EXIF metadata

Gotta Go Fast (Hard)

0 POINTS OUT OF
100

0.0%
ACCURACY

COMPLETION:

0.0%

Analyze a series of locations to identify the commonality between them and extrapolate another likely target location



Password Cracking Module

Identify types of password hashes and apply various techniques to efficiently determine plaintext passwords.

162ND PLACE
OUT OF 4672
NATIONAL RANK

50 POINTS
OUT OF
360
PERFORMANCE SCORE



97th National
Percentile

Average: 44.4 Points

Average: 82.2%

Average: 18.2%

Hashing (Easy)

20 POINTS
OUT OF
20

100.0%
ACCURACY

COMPLETION:

100.0%

Generate password hashes for MD5, SHA1, SHA256, and SHA512

International (Easy)

30 POINTS
OUT OF
30

100.0%
ACCURACY

COMPLETION:

100.0%

Build a wordlist or pattern rule to crack password hashes of a known pattern

WPA (Medium)

0 POINTS
OUT OF
50

0.0%
ACCURACY

COMPLETION:

0.0%

Research and crack WiFi passwords saved in a wpa_supplicant.conf file

Monsters (Medium)

0 POINTS
OUT OF
100

0.0%
ACCURACY

COMPLETION:

0.0%

Build a wordlist to crack passwords not found in common password wordlists

Speakeasy (Medium)

0 POINTS
OUT OF
60

0.0%
ACCURACY

COMPLETION:

0.0%

Build a wordlist or pattern rule to crack passwords with leet speak character replacements

Say My Name (Hard)

0 POINTS
OUT OF
100

0.0%
ACCURACY

COMPLETION:

0.0%

Build a wordlist to crack passwords not found in common wordlists and augment with rules for special characters



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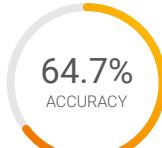
Thaddeus Thomas
thaddeus.r.thomas@gmail.com

Scanning & Reconnaissance Module

Identify and use the proper tools to gain intelligence about a target including its services and potential vulnerabilities.

110TH PLACE
OUT OF 4672
NATIONAL RANK

130 POINTS OUT OF 300
PERFORMANCE SCORE



98th National Percentile

Average: 70.3 Points



TOP NICE WORKROLES
Vulnerability Assessment Analyst
Target Network Analyst
Cyber Operations Planner
Target Developer
Security Control Assessor

Knock (Easy)

20 POINTS OUT OF 100

40.0% ACCURACY

COMPLETION:

33.3%

Run a TCP and UDP scan to identify running services and utilize port knocking to access a hidden service

SSH Server (Medium)

10 POINTS OUT OF 100

50.0% ACCURACY

COMPLETION:

33.3%

Utilize Public Key Infrastructure to generate valid SSH authentication certificates from a Certificate Authority

Academic Papers (Hard)

100 POINTS OUT OF 100

80.0% ACCURACY

COMPLETION:

100.0%

Analyze the history and metadata of a Docker image to identify information stored in the container

Web Application Exploitation Module

Identify actionable exploits and vulnerabilities and use them to bypass the security measures in online services.

45TH PLACE
OUT OF 4672
NATIONAL RANK

120 POINTS OUT OF 300
PERFORMANCE SCORE



100th National Percentile

Average: 32.6 Points



TOP NICE WORKROLES
Cyber Operator
Software Developer
Exploitation Analyst
Systems Security Analyst
Database Administrator

Secure Banking (Easy)

100 POINTS OUT OF 100

100.0% ACCURACY

COMPLETION:

100.0%

Identify the vulnerability that leaks an API token and utilize it in an account takeover attack

LowLine (Medium)

20 POINTS OUT OF 100

100.0% ACCURACY

COMPLETION:

50.0%

Exploit a known vulnerability in the JavaScript Lodash library (CVE-2021-23337) to extract sensitive server side data

Toms Fan Club v2 (Hard)

0 POINTS OUT OF 100

0.0% ACCURACY

COMPLETION:

0.0%

Analyze and conduct an assessment on a web application that uses a custom HTTP upgrade procedure



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thaddeus.r.thomas@gmail.com

NCL Spring 2023 Individual Game Scouting Report

Dear Thaddeus Thomas,

Thank you for participating in the National Cyber League (NCL) 2023 Spring Season! Our goal is to prepare the next generation of cybersecurity professionals, and your participation is helping achieve that goal.

The NCL was founded in May 2011 to provide an ongoing virtual training ground for collegiate students to develop, practice, and validate their cybersecurity skills in preparation for further learning, industry certifications, and career readiness. The NCL scenario-based challenges were designed around performance-based exam objectives of CompTIA certifications and are aligned to the National Initiative for Cybersecurity Education (NICE) Cybersecurity Workforce Framework published by the National Institute of Standards and Technology (NIST).

As you look to a future career in cybersecurity, we hope you find this report to be valuable in both validating skills and identifying areas for improvement across the nine NCL skills categories. You can use this NCL Scouting Report to:

- Validate your skills to employers in any job application or professional portfolio;
- Show case your achievements and strengths by including the Score Card view of your performance as part of your résumé or simply sharing the validation link so that others may view the detailed version of this report.

The NCL 2023 Spring Season had 7,820 students/players and 533 faculty/coaches from more than 450 two- and four-year schools & 250 high schools across all 50 U.S. states registered to play. The Individual Game Capture the Flag (CTF) event took place from March 31 through April 2. The Team Game CTF event took place from April 14 through April 16. The games were conducted in real-time for students across the country.

NCL is powered by Cyber Skyline's cloud-based skills evaluation platform. Cyber Skyline hosted the scenario-driven cybersecurity challenges for players to compete and track their progress in real-time.

To validate this report, please access: cyberskyline.com/report/C9RA4F3CCXKG



CompTIA. Based on the the performance detailed in this NCL Scouting Report, you have earned **11 hours** of Continuing Education Units (CEUs) as approved by CompTIA. You can learn more about the NCL - CompTIA alignment via nationalcyberleague.org/comptia.

Congratulations for your participation in the NCL 2023 Spring Individual Game! We hope you will continue to develop your knowledge and skills and make meaningful contributions as part of the Information Security workforce!

Dr. David Zeichick
NCL Commissioner



NATIONAL CYBER LEAGUE SCORE CARD

NCL 2023 SPRING INDIVIDUAL GAME

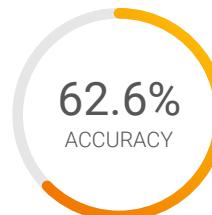
NATIONAL RANK
223RD PLACE
OUT OF 6273
PERCENTILE
97TH

YOUR TOP CATEGORIES

PASSWORD CRACKING
100TH PERCENTILE

CRYPTOGRAPHY
99TH PERCENTILE

SCANNING &
RECONNAISSANCE
96TH PERCENTILE



Average: 67.0%

[cyberskyline.com/report](https://cyberskyline.com/report/C9RA4F3CCXKG)
ID: C9RA4F3CCXKG



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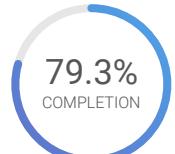
Thaddeus Thomas
thaddeus.r.thomas@gmail.com

NCL Spring 2023 Individual Game

The NCL Individual Game is designed for student players nationwide to compete in realtime in the categories listed below. The Individual Game evaluates the technical cybersecurity skills of the individual, without the assistance of others.

223^{RD PLACE}
OUT OF 6273
NATIONAL RANK

1820^{POINTS OUT OF 3000}
PERFORMANCE SCORE



97th National Percentile

Average: 816.2 Points

Average: 67.0%

Average: 38.0%

Cryptography

285^{POINTS OUT OF 360}

**40.7%
ACCURACY**

COMPLETION:

84.6%

A horizontal bar chart showing 84.6% completion for Cryptography. The bar is blue and ends at 84.6% on a grey scale.

Identify techniques used to encrypt or obfuscate messages and leverage tools to extract the plaintext.

Enumeration & Exploitation

120^{POINTS OUT OF 300}

**50.0%
ACCURACY**

COMPLETION:

77.8%

A horizontal bar chart showing 77.8% completion for Enumeration & Exploitation. The bar is blue and ends at 77.8% on a grey scale.

Identify actionable exploits and vulnerabilities and use them to bypass the security measures in code and compiled binaries.

Forensics

175^{POINTS OUT OF 300}

**46.2%
ACCURACY**

COMPLETION:

66.7%

A horizontal bar chart showing 66.7% completion for Forensics. The bar is blue and ends at 66.7% on a grey scale.

Utilize the proper tools and techniques to analyze, process, recover, and/or investigate digital evidence in a computer-related incident.

Log Analysis

110^{POINTS OUT OF 300}

**42.9%
ACCURACY**

COMPLETION:

54.5%

A horizontal bar chart showing 54.5% completion for Log Analysis. The bar is blue and ends at 54.5% on a grey scale.

Utilize the proper tools and techniques to establish a baseline for normal operation and identify malicious activities using log files from various services.

Network Traffic Analysis

230^{POINTS OUT OF 370}

**47.8%
ACCURACY**

COMPLETION:

78.6%

A horizontal bar chart showing 78.6% completion for Network Traffic Analysis. The bar is blue and ends at 78.6% on a grey scale.

Identify malicious and benign network traffic to demonstrate an understanding of potential security breaches.

Open Source Intelligence

310^{POINTS OUT OF 310}

**86.4%
ACCURACY**

COMPLETION:

100.0%

A horizontal bar chart showing 100.0% completion for Open Source Intelligence. The bar is blue and ends at 100.0% on a grey scale.

Utilize publicly available information such as search engines, public repositories, social media, and more to gain in-depth knowledge on a topic or target.

Password Cracking

325^{POINTS OUT OF 360}

**100.0%
ACCURACY**

COMPLETION:

95.5%

A horizontal bar chart showing 95.5% completion for Password Cracking. The bar is blue and ends at 95.5% on a grey scale.

Identify types of password hashes and apply various techniques to efficiently determine plaintext passwords.

Scanning & Reconnaissance

155^{POINTS OUT OF 300}

**81.8%
ACCURACY**

COMPLETION:

75.0%

A horizontal bar chart showing 75.0% completion for Scanning & Reconnaissance. The bar is blue and ends at 75.0% on a grey scale.

Identify and use the proper tools to gain intelligence about a target including its services and potential vulnerabilities.

Web Application Exploitation

10^{POINTS OUT OF 300}

**100.0%
ACCURACY**

COMPLETION:

16.7%

A horizontal bar chart showing 16.7% completion for Web Application Exploitation. The bar is blue and ends at 16.7% on a grey scale.

Identify actionable exploits and vulnerabilities and use them to bypass the security measures in online services.

Note: Survey module (100 points) was excluded from this report.



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Cryptography Module

Identify techniques used to encrypt or obfuscate messages and leverage tools to extract the plaintext.

111 TH PLACE
OUT OF 6273
NATIONAL RANK

285 POINTS OUT OF
360
PERFORMANCE SCORE

99th National
Percentile

Average: 115.0 Points



TOP NICE WORKROLES

Security Control Assessor
Secure Software Assessor
Exploitation Analyst
Cyber Operator
Security Architect

Decoding 1 (Easy)

30 POINTS OUT OF
30

100.0%
ACCURACY

COMPLETION:

100.0%

Obtain plaintext from messages encoded with common number bases

Decoding 2 (Easy)

30 POINTS OUT OF
30

100.0%
ACCURACY

COMPLETION:

100.0%

Analyze and obtain the plaintext for a message encrypted with a shift cipher

Decoding 3 (Medium)

25 POINTS OUT OF
25

100.0%
ACCURACY

COMPLETION:

100.0%

Obtain the plaintext of a message using charcode encoding

Rolling (Medium)

50 POINTS OUT OF
50

21.4%
ACCURACY

COMPLETION:

100.0%

Analyze the cryptographic weakness of a ECB encrypted image

PGP (Medium)

75 POINTS OUT OF
75

20.0%
ACCURACY

COMPLETION:

100.0%

Decrypt a PGP message and encrypt a PGP message using provided keys

AES (Hard)

0 POINTS OUT OF
75

0.0%
ACCURACY

COMPLETION:

0.0%

Decrypt an AES encrypted message by exploiting an insecure key generation

Steg (Hard)

75 POINTS OUT OF
75

50.0%
ACCURACY

COMPLETION:

100.0%

Recover the plaintext of a message that was hidden using LSB steganography



Enumeration & Exploitation Module

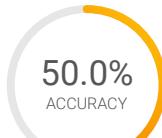
Identify actionable exploits and vulnerabilities and use them to bypass the security measures in code and compiled binaries.

828 TH PLACE
OUT OF 6273
NATIONAL RANK

120 POINTS OUT OF
300
PERFORMANCE SCORE

87th National
Percentile

Average: 98.8 Points



Average: 53.9%



Average: 58.8%

TOP NICE WORKROLES

Cyber Operator
Target Developer
Exploitation Analyst
Software Developer
Systems Security Analyst

Dropper (Easy)

100 POINTS OUT OF
100

50.0%
ACCURACY

COMPLETION:

100.0%

Analyze the behavior of a PowerShell malware that schedules system events for persistence

Ground floor (Medium)

20 POINTS OUT OF
100

50.0%
ACCURACY

COMPLETION:

50.0%

Analyze raw x64 assembly instructions to find a vulnerability in a validation check function

Memfrob (Hard)

0 POINTS OUT OF
100

0.0%
ACCURACY

COMPLETION:

0.0%

Analyze and exploit a compiled C binary by leveraging a buffer overflow and ROP chains

Forensics Module

Utilize the proper tools and techniques to analyze, process, recover, and/or investigate digital evidence in a computer-related incident.

352 ND PLACE
OUT OF 6273
NATIONAL RANK

175 POINTS OUT OF
300
PERFORMANCE SCORE

95th National
Percentile

Average: 128.7 Points



Average: 57.4%



Average: 43.4%

TOP NICE WORKROLES

Cyber Defense Forensics
Analyst
Cyber Crime Investigator
Cyber Defense Incident
Responder
Cyber Defense Analyst

Lost (Easy)

100 POINTS OUT OF
100

100.0%
ACCURACY

COMPLETION:

100.0%

Recover files from the recycling bin of a Windows filesystem

Fruit (Medium)

75 POINTS OUT OF
100

57.1%
ACCURACY

COMPLETION:

80.0%

Recover configuration data from a macOS plist file

Headless (Hard)

0 POINTS OUT OF
100

0.0%
ACCURACY

COMPLETION:

0.0%

Identify the file type of the corrupted file and repair its magic bytes



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Log Analysis Module

Utilize the proper tools and techniques to establish a baseline for normal operation and identify malicious activities using log files from various services.

342ND PLACE
OUT OF 6273
NATIONAL RANK

110 POINTS OUT OF 300
PERFORMANCE SCORE

95th National Percentile

Average: 65.6 Points



TOP NICE WORKROLES

- Cyber Defense Analyst
- Systems Security Analyst
- All-Source Analyst
- Cyber Defense Forensics Analyst
- Data Analyst

Web (Easy)

100 POINTS OUT OF 100

71.4% ACCURACY

COMPLETION:

100.0%

Analyze a web server log and identify traffic patterns

Email Compromise (Medium)

10 POINTS OUT OF 100

16.7% ACCURACY

COMPLETION:

25.0%

Analyze Office 365 & DNS logs to identify a phishing email compromise

Fraud (Hard)

0 POINTS OUT OF 100

0.0% ACCURACY

COMPLETION:

0.0%

Analyze a payment log to identify what account had fraudulent purchases



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Network Traffic Analysis Module

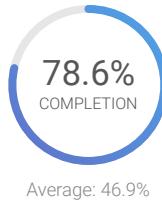
Identify malicious and benign network traffic to demonstrate an understanding of potential security breaches.

391ST PLACE
OUT OF 6273
NATIONAL RANK

230 POINTS OUT OF
370
PERFORMANCE SCORE

94th National
Percentile

Average: 133.0 Points



TOP NICE WORKROLES

Cyber Defense Analyst
All-Source Analyst
Cyber Defense Incident Responder
Target Network Analyst
Cyber Operator

Information (Easy)

100 POINTS OUT OF
100

100.0%
ACCURACY

COMPLETION: **100.0%**

Analyze a network packet capture of WHOIS queries to obtain information on a domain

Hidden (Medium)

20 POINTS OUT OF
70

50.0%
ACCURACY

COMPLETION: **66.7%**

Analyze a vulnerable WPA-encrypted network and perform a wordlist attack on the password

Scan (Medium)

100 POINTS OUT OF
100

33.3%
ACCURACY

COMPLETION: **100.0%**

Analyze a network packet capture to identify open ports on the target server and the type of nmap scan

Ponder (Hard)

10 POINTS OUT OF
100

33.3%
ACCURACY

COMPLETION: **33.3%**

Analyze a network packet capture to extract data stolen through DNS based data exfiltration



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Open Source Intelligence Module

Utilize publicly available information such as search engines, public repositories, social media, and more to gain in-depth knowledge on a topic or target.

480 TH PLACE
OUT OF 6273
NATIONAL RANK

310 POINTS OUT OF
310
PERFORMANCE SCORE

93rd National
Percentile

Average: 215.7 Points



TOP NICE WORKROLES
Systems Security Analyst
Target Developer
System Administrator
Research & Development Specialist
Cyber Intel Planner

Rules of Conduct (Easy)

15 POINTS OUT OF
15

100.0%
ACCURACY

COMPLETION:

100.0%

Introductory challenge on acceptable conduct during NCL

Waypoints (Easy)

50 POINTS OUT OF
50

83.3%
ACCURACY

COMPLETION:

100.0%

Identify openly available information on navigation waypoints

Document (Medium)

50 POINTS OUT OF
50

100.0%
ACCURACY

COMPLETION:

100.0%

Extract the fields from the machine-readable zone of a passport

Esoteric (Medium)

50 POINTS OUT OF
50

66.7%
ACCURACY

COMPLETION:

100.0%

Identify the esoteric alphabet used to hide a secret message

Greek (Medium)

70 POINTS OUT OF
70

100.0%
ACCURACY

COMPLETION:

100.0%

Identify the location of a photograph using reverse image search

Numbers (Hard)

75 POINTS OUT OF
75

75.0%
ACCURACY

COMPLETION:

100.0%

Identify the scheme of a set of numbers without a well known format



Password Cracking Module

Identify types of password hashes and apply various techniques to efficiently determine plaintext passwords.

3 RD PLACE
OUT OF 6273
NATIONAL RANK

325 POINTS OUT OF
360
PERFORMANCE SCORE

100 th National Percentile

Average: 133.2 Points



Average: 87.3%



Average: 45.5%

TOP NICE WORKROLES

Cyber Operator
Exploitation Analyst
Systems Security Analyst
Cyber Defense Incident Responder
Cyber Crime Investigator

Hashing (Easy)

30 POINTS OUT OF
30

100.0%
ACCURACY

COMPLETION: **100.0%**

Generate password hashes for MD5, SHA1, and SHA256

Cracking 1 (Easy)

45 POINTS OUT OF
45

100.0%
ACCURACY

COMPLETION: **100.0%**

Crack MD5 password hashes

Cracking 2 (Easy)

45 POINTS OUT OF
45

100.0%
ACCURACY

COMPLETION: **100.0%**

Crack Windows NTLM password hashes using rainbow tables

Cracking 3 (Medium)

45 POINTS OUT OF
45

100.0%
ACCURACY

COMPLETION: **100.0%**

Build a wordlist or pattern config to crack password hashes of a known pattern

Cracking 4 (Hard)

45 POINTS OUT OF
45

100.0%
ACCURACY

COMPLETION: **100.0%**

Build a wordlist or pattern config to crack password hashes of a known pattern

Cracking 5 (Hard)

65 POINTS OUT OF
100

100.0%
ACCURACY

COMPLETION: **80.0%**

Build a wordlist to crack passwords not found in common wordlists

PDF (Medium)

50 POINTS OUT OF
50

100.0%
ACCURACY

COMPLETION: **100.0%**

Crack the password for a protected PDF file



Scanning & Reconnaissance Module

Identify and use the proper tools to gain intelligence about a target including its services and potential vulnerabilities.

313TH PLACE
OUT OF 6273
NATIONAL RANK

155 POINTS OUT OF 300
PERFORMANCE SCORE

96th National Percentile

Average: 111.6 Points



Average: 70.1%



Average: 43.7%

TOP NICE WORKROLES
Vulnerability Assessment Analyst
Target Network Analyst
Cyber Operations Planner
Target Developer
Security Control Assessor

Ports (Easy)

100 POINTS OUT OF 100

100.0%
ACCURACY

COMPLETION:

100.0%

Scan a remote host for open ports and identify running services

Who (Medium)

0 POINTS OUT OF 100

0.0%
ACCURACY

COMPLETION:

0.0%

Enumerate the possible domains on a WHOIS server to extract information

Metadata (Hard)

55 POINTS OUT OF 100

66.7%
ACCURACY

COMPLETION:

80.0%

Scan an AWS EC2 Metadata Service to extract information about the instance

Web Application Exploitation Module

Identify actionable exploits and vulnerabilities and use them to bypass the security measures in online services.

709TH PLACE
OUT OF 6273
NATIONAL RANK

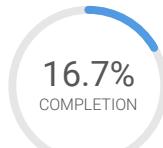
10 POINTS OUT OF 300
PERFORMANCE SCORE

89th National Percentile

Average: 33.0 Points



Average: 39.7%



Average: 20.0%

TOP NICE WORKROLES
Cyber Operator
Software Developer
Exploitation Analyst
Systems Security Analyst
Database Administrator

Shopping (Easy)

10 POINTS OUT OF 100

100.0%
ACCURACY

COMPLETION:

50.0%

Exploit an implicit type conversion vulnerability in an express application

Attack Portal (Medium)

0 POINTS OUT OF 100

0.0%
ACCURACY

COMPLETION:

0.0%

Manipulate a web form to inject extra JSON fields to override a server-side check

File Server (Hard)

0 POINTS OUT OF 100

0.0%
ACCURACY

COMPLETION:

0.0%

Exploit a race condition to download a restricted file during server operations



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NCL Spring 2023 Team Game Scouting Report

Dear Thaddeus Thomas (Team "IveBeenPwned"),

Thank you for participating in the National Cyber League (NCL) 2023 Spring Season! Our goal is to prepare the next generation of cybersecurity professionals, and your participation is helping achieve that goal.

The NCL was founded in May 2011 to provide an ongoing virtual training ground for collegiate students to develop, practice, and validate their cybersecurity skills in preparation for further learning, industry certifications, and career readiness. The NCL scenario-based challenges were designed around performance-based exam objectives of CompTIA certifications and are aligned to the National Initiative for Cybersecurity Education (NICE) Cybersecurity Workforce Framework published by the National Institute of Standards and Technology (NIST).

As you look to a future career in cybersecurity, we hope you find this report to be valuable in both validating skills and identifying areas for improvement across the nine NCL skills categories. You can use this NCL Scouting Report to:

- Validate your skills to employers in any job application or professional portfolio;
- Show case your achievements and strengths by including the Score Card view of your performance as part of your résumé or simply sharing the validation link so that others may view the detailed version of this report.

The NCL 2023 Spring Season had 7,820 students/players and 533 faculty/coaches from more than 450 two- and four-year schools & 250 high schools across all 50 U.S. states registered to play. The Individual Game Capture the Flag (CTF) event took place from March 31 through April 2. The Team Game CTF event took place from April 14 through April 16. The games were conducted in real-time for students across the country.

NCL is powered by Cyber Skyline's cloud-based skills evaluation platform. Cyber Skyline hosted the scenario-driven cybersecurity challenges for players to compete and track their progress in real-time.

To validate this report, please access: cyberskyline.com/report/BD7H6T6G7LP9



Congratulations for your participation in the NCL 2023 Spring Team Game! We hope you will continue to develop your knowledge and skills and make meaningful contributions as part of the Information Security workforce!

Dr. David Zeichick
NCL Commissioner



NATIONAL CYBER LEAGUE SCORE CARD

NCL 2023 SPRING TEAM GAME

NATIONAL RANK
83RD PLACE
OUT OF 3593

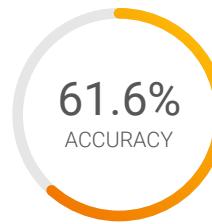
PERCENTILE
98TH

YOUR TOP CATEGORIES

WEB APPLICATION EXPLOITATION
100TH PERCENTILE

LOG ANALYSIS
99TH PERCENTILE

CRYPTOGRAPHY
98TH PERCENTILE



Average: 61.7%

[cyberskyline.com/report
ID: BD7H6T6G7LP9](https://cyberskyline.com/report>ID: BD7H6T6G7LP9)



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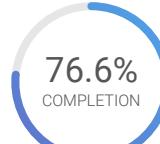
Thaddeus Thomas
thaddeus.r.thomas@gmail.com

NCL Spring 2023 Team Game

The NCL Team Game is designed for student players nationwide to compete in realtime in the categories listed below. The Team Game promotes camaraderie and evaluates the collective technical cybersecurity skills of the team members.

83rd PLACE
OUT OF 3593
NATIONAL RANK

1940 POINTS OUT OF
3000
PERFORMANCE SCORE



98th National
Percentile

Average: 834.7 Points

Average: 61.7%

Average: 35.9%

Cryptography

205 POINTS OUT OF
355

90.0%
ACCURACY

COMPLETION:

75.0%

Identify techniques used to encrypt or obfuscate messages and leverage tools to extract the plaintext.

Enumeration & Exploitation

110 POINTS OUT OF
300

66.7%
ACCURACY

COMPLETION:

66.7%

Identify actionable exploits and vulnerabilities and use them to bypass the security measures in code and compiled binaries.

Forensics

135 POINTS OUT OF
300

17.4%
ACCURACY

COMPLETION:

44.4%

Utilize the proper tools and techniques to analyze, process, recover, and/or investigate digital evidence in a computer-related incident.

Log Analysis

300 POINTS OUT OF
300

71.4%
ACCURACY

COMPLETION:

100.0%

Utilize the proper tools and techniques to establish a baseline for normal operation and identify malicious activities using log files from various services.

Network Traffic Analysis

170 POINTS OUT OF
365

52.6%
ACCURACY

COMPLETION:

58.8%

Identify malicious and benign network traffic to demonstrate an understanding of potential security breaches.

Open Source Intelligence

350 POINTS OUT OF
350

50.0%
ACCURACY

COMPLETION:

100.0%

Utilize publicly available information such as search engines, public repositories, social media, and more to gain in-depth knowledge on a topic or target.

Password Cracking

210 POINTS OUT OF
330

93.3%
ACCURACY

COMPLETION:

82.4%

Try your hand at cracking these passwords.

Scanning & Reconnaissance

230 POINTS OUT OF
300

100.0%
ACCURACY

COMPLETION:

70.0%

Identify and use the proper tools to gain intelligence about a target including its services and potential vulnerabilities.

Web Application Exploitation

130 POINTS OUT OF
300

100.0%
ACCURACY

COMPLETION:

50.0%

Identify actionable exploits and vulnerabilities and use them to bypass the security measures in online services.

Note: Survey module (100 points) was excluded from this report.



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Cryptography Module

Identify techniques used to encrypt or obfuscate messages and leverage tools to extract the plaintext.

94 TH PLACE
OUT OF 3593
NATIONAL RANK

205 POINTS OUT OF
355
PERFORMANCE SCORE

98th National
Percentile

Average: 114.5 Points



Average: 65.8%



Average: 50.8%

TOP NICE WORKROLES

Security Control Assessor
Secure Software Assessor
Exploitation Analyst
Cyber Operator
Security Architect

Decoding 1 (Easy)

30 POINTS OUT OF
30

100.0%
ACCURACY

COMPLETION:

100.0%

Obtain plaintext from messages encoded with common number bases

Decoding 2 (Easy)

30 POINTS OUT OF
30

100.0%
ACCURACY

COMPLETION:

100.0%

Analyze and obtain the plaintext for a message encrypted with a shift cipher

Decoding 3 (Easy)

30 POINTS OUT OF
30

50.0%
ACCURACY

COMPLETION:

100.0%

Obtain the plaintext of a message using a keypad cipher

Decoding 4 (Medium)

0 POINTS OUT OF
50

0.0%
ACCURACY

COMPLETION:

0.0%

Decrypt an AES encrypted message with a known password

PGP (Medium)

50 POINTS OUT OF
50

100.0%
ACCURACY

COMPLETION:

100.0%

Decrypt a PGP message and encrypt a PGP message using provided keys

Beep Boop (Medium)

65 POINTS OUT OF
65

100.0%
ACCURACY

COMPLETION:

100.0%

Analyze an audio file and decode a message that is encoded with dual-tone multi-frequency signaling

AutoCrypt (Hard)

0 POINTS OUT OF
100

0.0%
ACCURACY

COMPLETION:

0.0%

Analyze a cryptographic scheme and find the vulnerability in an autokey cipher to decrypt the message



Enumeration & Exploitation Module

Identify actionable exploits and vulnerabilities and use them to bypass the security measures in code and compiled binaries.

157TH PLACE
OUT OF 3593
NATIONAL RANK

110 POINTS OUT OF 300
PERFORMANCE SCORE

96th National Percentile

Average: 75.7 Points



Average: 56.9%



Average: 46.4%

TOP NICE WORKROLES

Cyber Operator
Target Developer
Exploitation Analyst
Software Developer
Systems Security Analyst

Shinny Stone (Easy)

100 POINTS OUT OF 100

100.0%
ACCURACY

COMPLETION:

100.0%

Analyze Ruby source code to decrypt a message that was encrypted using AES

Vault (Medium)

10 POINTS OUT OF 100

50.0%
ACCURACY

COMPLETION:

50.0%

Extract and analyze a compiled Python file from a macOS mach-o binary

Crypto Coincidence (Hard)

0 POINTS OUT OF 100

0.0%
ACCURACY

COMPLETION:

0.0%

Analyze a compiled C binary and bypass its custom encryption and packing

Forensics Module

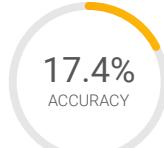
Utilize the proper tools and techniques to analyze, process, recover, and/or investigate digital evidence in a computer-related incident.

141ST PLACE
OUT OF 3593
NATIONAL RANK

135 POINTS OUT OF 300
PERFORMANCE SCORE

97th National Percentile

Average: 96.9 Points



Average: 59.1%



Average: 34.2%

TOP NICE WORKROLES

Cyber Defense Forensics Analyst
Cyber Crime Investigator
Cyber Defense Incident Responder
Cyber Defense Analyst

Stacked (Easy)

100 POINTS OUT OF 100

100.0%
ACCURACY

COMPLETION:

100.0%

Find and extract hidden files within an image using tools like binwalk

Hidden (Medium)

35 POINTS OUT OF 100

9.5%
ACCURACY

COMPLETION:

50.0%

Extract hidden information from a macOS .DS_STORE file

Memory (Hard)

0 POINTS OUT OF 100

0.0%
ACCURACY

COMPLETION:

0.0%

Analyze a Linux memory dump using tools like Volatility to extract encryption keys from a Vim buffer and decrypt an in-memory encrypted file



Log Analysis Module

Utilize the proper tools and techniques to establish a baseline for normal operation and identify malicious activities using log files from various services.

47TH PLACE
OUT OF 3593
NATIONAL RANK

300 POINTS OUT OF 300
PERFORMANCE SCORE

99th National Percentile

Average: 138.2 Points



Average: 57.5%



Average: 51.2%

TOP NICE WORKROLES

Cyber Defense Analyst
Systems Security Analyst
All-Source Analyst
Cyber Defense Forensics Analyst
Data Analyst

PGP (Easy)

100 POINTS OUT OF 100

100.0%
ACCURACY

COMPLETION:

100.0%

Analyze clear-signed documents to verify their authenticity using PGP keys

Iptables (Medium)

100 POINTS OUT OF 100

50.0%
ACCURACY

COMPLETION:

100.0%

Analyze a iptables log file to identify network traffic patterns

Flight Record (Hard)

100 POINTS OUT OF 100

88.9%
ACCURACY

COMPLETION:

100.0%

Parse a binary encoded drone flight record file and extract its fields

Network Traffic Analysis Module

Identify malicious and benign network traffic to demonstrate an understanding of potential security breaches.

241ST PLACE
OUT OF 3593
NATIONAL RANK

170 POINTS OUT OF 365
PERFORMANCE SCORE

94th National Percentile

Average: 151.3 Points



Average: 45.4%



Average: 48.8%

TOP NICE WORKROLES

Cyber Defense Analyst
All-Source Analyst
Cyber Defense Incident Responder
Target Network Analyst
Cyber Operator

Attack (Easy)

100 POINTS OUT OF 100

71.4%
ACCURACY

COMPLETION:

100.0%

Analyze a network packet capture to identify an ARP spoofing attack

Chunked (Easy)

25 POINTS OUT OF 65

50.0%
ACCURACY

COMPLETION:

66.7%

Analyze a wireless network packet capture to extract information from the broadcast packets

Lighting (Medium)

45 POINTS OUT OF 100

37.5%
ACCURACY

COMPLETION:

50.0%

Analyze a network packet capture to identify the IOT protocol and decode its communications

Covert Exfiltration (Hard)

0 POINTS OUT OF 100

0.0%
ACCURACY

COMPLETION:

0.0%

Reassemble a multi-part HTTP file download from a network packet capture



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CYBER SKYLINE

The National Cyber League
A Community Where Cybersecurity Is a Passion

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Open Source Intelligence Module

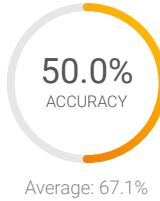
Utilize publicly available information such as search engines, public repositories, social media, and more to gain in-depth knowledge on a topic or target.

193 RD PLACE
OUT OF 3593
NATIONAL RANK

350 POINTS OUT OF 350
PERFORMANCE SCORE

95th National
Percentile

Average: 224.6 Points



TOP NICE WORKROLES
Systems Security Analyst
Target Developer
System Administrator
Research & Development Specialist
Cyber Intel Planner

Rules of Conduct (Easy)

25 POINTS OUT OF 25

100.0%
ACCURACY

COMPLETION:

100.0%

Introductory challenge on acceptable conduct during NCL

Network Info (Easy)

50 POINTS OUT OF 50

66.7%
ACCURACY

COMPLETION:

100.0%

Extract WiFi network information out of a QR code

Message in Stone (Medium)

75 POINTS OUT OF 75

100.0%
ACCURACY

COMPLETION:

100.0%

Identify the ancient esoteric alphabet used to hide a secret message

Restaurant WiFi (Medium)

100 POINTS OUT OF 100

18.2%
ACCURACY

COMPLETION:

100.0%

Identify the guest WiFi password using openly available information

Vantage Point (Hard)

100 POINTS OUT OF 100

40.0%
ACCURACY

COMPLETION:

100.0%

Geolocate a photo without GPS metadata



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Password Cracking Module

Try your hand at cracking these passwords.

122ND PLACE
OUT OF 3593
NATIONAL RANK

210 POINTS OUT OF
330
PERFORMANCE SCORE

97th National
Percentile

Average: 111.1 Points



Average: 85.8%



Average: 47.0%

TOP NICE WORKROLES

Cyber Operator
Exploitation Analyst
Systems Security Analyst
Cyber Defense Incident
Responder
Cyber Crime Investigator

Cracking 1 (Easy)

30 POINTS OUT OF
30

100.0%
ACCURACY

COMPLETION: **100.0%**

Crack MD5 password hashes

Cracking 2 (Easy)

30 POINTS OUT OF
30

75.0%
ACCURACY

COMPLETION: **100.0%**

Crack Windows NTLM password hashes using rainbow tables

Cracking 3 (Medium)

45 POINTS OUT OF
45

100.0%
ACCURACY

COMPLETION: **100.0%**

Build a wordlist or pattern config to crack password hashes of a known pattern

Cracking 4 (Hard)

75 POINTS OUT OF
75

100.0%
ACCURACY

COMPLETION: **100.0%**

Crack salted MD5 password hashes

Cracking 5 (Hard)

30 POINTS OUT OF
150

100.0%
ACCURACY

COMPLETION: **40.0%**

Build a wordlist to crack salted passwords not found in common wordlists



Scanning & Reconnaissance Module

Identify and use the proper tools to gain intelligence about a target including its services and potential vulnerabilities.

114TH PLACE
OUT OF 3593
NATIONAL RANK

230 POINTS OUT OF 300
PERFORMANCE SCORE



97th National Percentile

Average: 129.1 Points



TOP NICE WORKROLES
Vulnerability Assessment Analyst
Target Network Analyst
Cyber Operations Planner
Target Developer
Security Control Assessor

Docker (Easy)

60 POINTS OUT OF 100

100.0%
ACCURACY

COMPLETION:

60.0%

Extract metadata information from a Docker container image

Call to Action (Medium)

100 POINTS OUT OF 100

100.0%
ACCURACY

COMPLETION:

100.0%

Scan and extract information data from a Redis database

Database (Hard)

70 POINTS OUT OF 100

100.0%
ACCURACY

COMPLETION:

66.7%

Scan and extract information data from a MongoDB database

Web Application Exploitation Module

Identify actionable exploits and vulnerabilities and use them to bypass the security measures in online services.

26TH PLACE
OUT OF 3593
NATIONAL RANK

130 POINTS OUT OF 300
PERFORMANCE SCORE



100th National Percentile

Average: 47.9 Points



TOP NICE WORKROLES
Cyber Operator
Software Developer
Exploitation Analyst
Systems Security Analyst
Database Administrator

Never Winter Bank (Easy)

100 POINTS OUT OF 100

100.0%
ACCURACY

COMPLETION:

100.0%

Exploit a bug in the parseInt function of older JavaScript web runtimes

WebAuthn (Medium)

0 POINTS OUT OF 100

0.0%
ACCURACY

COMPLETION:

0.0%

Exploit an improperly configured WebAuthn login scheme

File Server v2 (Hard)

30 POINTS OUT OF 100

100.0%
ACCURACY

COMPLETION:

50.0%

Exploit a race condition to download a restricted file during server operations