



NCL Fall 2021 Individual Game Scouting Report

Dear Ethan Brinks,

Thank you for participating in the National Cyber League (NCL) 2021 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 2021 Fall Season had 7,130 students/players and 491 faculty/coaches from more than 500 two- and four-year schools & 70 high schools across all 50 U.S. states registered to play. The Individual Game Capture the Flag (CTF) event took place from October 22 through October 24. The Team Game CTF event took place from November 5 through November 7. 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/4M2QVDBVR2MR

Congratulations for your participation in the NCL 2021 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!

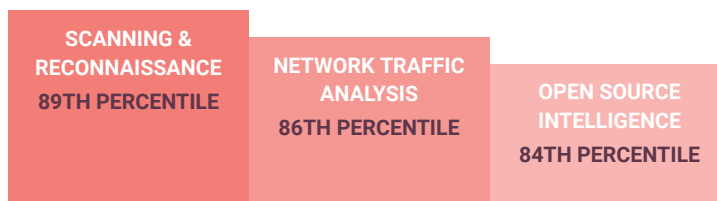
David Zeichick
NCL Commissioner



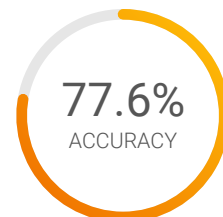
NATIONAL CYBER LEAGUE SCORE CARD

NCL 2021 FALL INDIVIDUAL GAME

YOUR TOP CATEGORIES



NATIONAL RANK
1106TH PLACE
OUT OF 6480
PERCENTILE
83RD



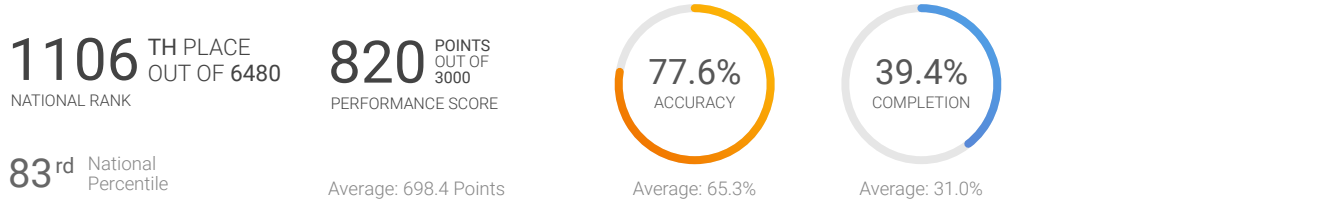
Average: 65.3%

cyberskyline.com/report/4M2QVDBVR2MR



NCL Fall 2021 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.



Cryptography	130 ^{POINTS} OUT OF 330	71.4% ACCURACY	COMPLETION: 62.5%
Identify techniques used to encrypt or obfuscate messages and leverage tools to extract the plaintext.			
Enumeration & Exploitation	20 ^{POINTS} OUT OF 320	33.3% ACCURACY	COMPLETION: 33.3%
Identify actionable exploits and vulnerabilities and use them to bypass the security measures in code and compiled binaries.			
Forensics	100 ^{POINTS} OUT OF 300	100.0% ACCURACY	COMPLETION: 40.0%
Utilize the proper tools and techniques to analyze, process, recover, and/or investigate digital evidence in a computer-related incident.			
Log Analysis	45 ^{POINTS} OUT OF 340	57.1% ACCURACY	COMPLETION: 21.1%
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	110 ^{POINTS} OUT OF 355	90.9% ACCURACY	COMPLETION: 41.7%
Identify malicious and benign network traffic to demonstrate an understanding of potential security breaches.			
Open Source Intelligence	180 ^{POINTS} OUT OF 300	86.7% ACCURACY	COMPLETION: 72.2%
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	35 ^{POINTS} OUT OF 320	100.0% ACCURACY	COMPLETION: 22.7%
Identify types of password hashes and apply various techniques to efficiently determine plaintext passwords.			
Scanning & Reconnaissance	100 ^{POINTS} OUT OF 310	83.3% ACCURACY	COMPLETION: 35.7%
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.

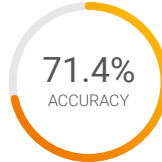


Cryptography Module

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

1316 TH PLACE
OUT OF 6480
NATIONAL RANK

130 POINTS
OUT OF 330
PERFORMANCE SCORE



Average: 85.2%



Average: 53.1%

TOP NICE WORKROLES

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

80th National
Percentile

Average: 134.1 Points

Decoding 1 (Easy)

30 POINTS
OUT OF 45

75.0%
ACCURACY

COMPLETION: **75.0%**

Identify the type of base encoding used and decode the data

Decoding 2 (Easy)

30 POINTS
OUT OF 30

100.0%
ACCURACY

COMPLETION: **100.0%**

Identify the cipher scheme used and decrypt the data

Decoding 3 (Easy)

20 POINTS
OUT OF 20

100.0%
ACCURACY

COMPLETION: **100.0%**

Identify the cipher scheme used and decrypt the data

Decoding 4 (Medium)

0 POINTS
OUT OF 35

0.0%
ACCURACY

COMPLETION: **0.0%**

Identify the alphabet encoding used and decode the data

Decoding 5 (Hard)

20 POINTS
OUT OF 50

100.0%
ACCURACY

COMPLETION: **66.7%**

Exploit an RSA implementation and extract the sensitive data that was encrypted

Steg (Easy)

0 POINTS
OUT OF 20

0.0%
ACCURACY

COMPLETION: **0.0%**

Identify the steganography technique used and extract the hidden data

Cyber Cat (Easy)

0 POINTS
OUT OF 50

0.0%
ACCURACY

COMPLETION: **0.0%**

Identify the metadata and encoding used to hide data in an image file

SSL (Hard)

30 POINTS
OUT OF 80

40.0%
ACCURACY

COMPLETION: **66.7%**

Parse through hundreds of SSL certificates to identify any invalid or improperly signed SSL certificates



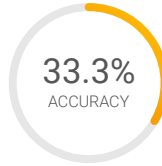


Enumeration & Exploitation Module

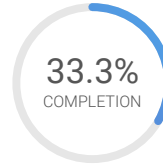
Identify actionable exploits and vulnerabilities and use them to bypass the security measures in code and compiled binaries.

1114 TH PLACE
OUT OF 6480
NATIONAL RANK

20 POINTS
OUT OF 320
PERFORMANCE SCORE



Average: 43.1%



Average: 32.2%

TOP NICE WORKROLES

Cyber Operator
Target Developer
Exploitation Analyst
Software Developer
Systems Security Analyst

83rd National
Percentile

Average: 55.0 Points

Micro (Easy)

10 POINTS
OUT OF 100

20.0%
ACCURACY

COMPLETION: **50.0%**

Analyze a Lua script source code & reverse engineer its functionality

Shinny (Medium)

10 POINTS
OUT OF 100

100.0%
ACCURACY

COMPLETION: **50.0%**

Analyze an obfuscated Python program & reverse engineer its functionality

Rock (Hard)

0 POINTS
OUT OF 120

0.0%
ACCURACY

COMPLETION: **0.0%**

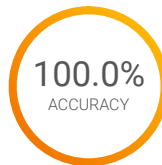
Decompile and analyze a C++ binary file & reverse engineer its functionality

Forensics Module

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

1161 ST PLACE
OUT OF 6480
NATIONAL RANK

100 POINTS
OUT OF 300
PERFORMANCE SCORE



Average: 73.5%



Average: 59.6%

TOP NICE WORKROLES

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

83rd National
Percentile

Average: 163.7 Points

Archive (Easy)

100 POINTS
OUT OF 100

100.0%
ACCURACY

COMPLETION: **100.0%**

Fix a corrupted rar file to recover the archive's original contents

Docter (Medium)

0 POINTS
OUT OF 100

0.0%
ACCURACY

COMPLETION: **0.0%**

Identify and extract files hidden inside a Microsoft Word document file

Where in the World? (Hard)

0 POINTS
OUT OF 100

0.0%
ACCURACY

COMPLETION: **0.0%**

Analyze the available information in a photograph to identify where the photo was taken



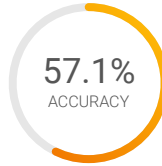


Log Analysis Module

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

1145 TH PLACE
OUT OF 6480
NATIONAL RANK

45 POINTS
OUT OF 340
PERFORMANCE SCORE



Average: 42.9%



Average: 35.2%

TOP NICE WORKROLES

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

83rd National
Percentile

Average: 103.9 Points

Wild Web (Easy)

35 POINTS
OUT OF 110

50.0%
ACCURACY

COMPLETION:

42.9%

Analyze a web server's access logs to identify trends and suspicious access

Mountains (Medium)

10 POINTS
OUT OF 100

100.0%
ACCURACY

COMPLETION:

20.0%

Execute commands on an Alpine Linux server to identify installed packages

IDS (Hard)

0 POINTS
OUT OF 130

0.0%
ACCURACY

COMPLETION:

0.0%

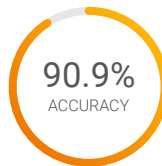
Analyze an IDS log to identify indicators of compromise and attack signatures

Network Traffic Analysis Module

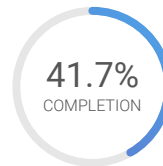
Identify malicious and benign network traffic to demonstrate an understanding of potential security breaches.

967 TH PLACE
OUT OF 6480
NATIONAL RANK

110 POINTS
OUT OF 355
PERFORMANCE SCORE



Average: 65.0%



Average: 41.2%

TOP NICE WORKROLES

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

86th National
Percentile

Average: 121.8 Points

FTP (Easy)

50 POINTS
OUT OF 80

100.0%
ACCURACY

COMPLETION:

80.0%

Analyze a capture of FTP traffic to identify user credentials and files accessed

Cracking (Medium)

20 POINTS
OUT OF 55

66.7%
ACCURACY

COMPLETION:

50.0%

Analyze and identify WiFi network metadata and crack the WiFi password

TV (Medium)

0 POINTS
OUT OF 100

0.0%
ACCURACY

COMPLETION:

0.0%

Analyze a websocket packet capture containing smart TV control commands

WiFi (Hard)

40 POINTS
OUT OF 120

100.0%
ACCURACY

COMPLETION:

57.1%

Identify the vulnerable data fields to exploit the 802.11 PMKID vulnerability and crack the WiFi network access password



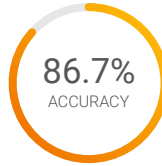


Open Source Intelligence Module

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

1056 TH PLACE
OUT OF 6480
NATIONAL RANK

180 POINTS
OUT OF 300
PERFORMANCE SCORE



Average: 66.9%



Average: 58.3%

TOP NICE WORKROLES

- Systems Security Analyst
- Target Developer
- System Administrator
- Research & Development Specialist
- Cyber Intel Planner

84th National
Percentile

Average: 134.2 Points

Rules of Conduct (Easy)

15 POINTS
OUT OF 15

100.0%
ACCURACY

COMPLETION: **100.0%**

Introductory challenge on acceptable conduct during NCL

APTs (Easy)

30 POINTS
OUT OF 30

100.0%
ACCURACY

COMPLETION: **100.0%**

Identify attributes regarding popular Advanced Persistent Threats

Unknown Hash (Easy)

0 POINTS
OUT OF 45

0.0%
ACCURACY

COMPLETION: **0.0%**

Identify the protocol associated with a hash digest and its associated files

Hacker Location (Medium)

50 POINTS
OUT OF 50

100.0%
ACCURACY

COMPLETION: **100.0%**

Identify the location encoding scheme which uses only 3 words

Stolen Camera (Medium)

70 POINTS
OUT OF 70

80.0%
ACCURACY

COMPLETION: **100.0%**

Extract camera serial number from an image and identify stolen camera registries

Tom's Hotel (Hard)

15 POINTS
OUT OF 90

50.0%
ACCURACY

COMPLETION: **33.3%**

Identify attributes from a photo to pin point the location that the photo was taken



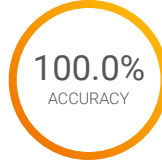


Password Cracking Module

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

2134 TH PLACE
OUT OF 6480
NATIONAL RANK

35 POINTS
OUT OF 320
PERFORMANCE SCORE



Average: 86.8%



Average: 43.0%

TOP NICE WORKROLES

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

68th National
Percentile

Average: 94.4 Points

Hashing (Easy)

15 POINTS
OUT OF 15

100.0%
ACCURACY

COMPLETION: **100.0%**

Generate password hashes for MD5, SHA1, and SHA256

Cracking 1 (Easy)

20 POINTS
OUT OF 30

100.0%
ACCURACY

COMPLETION: **66.7%**

Crack MD5 password hashes

Cracking 2 (Easy)

0 POINTS
OUT OF 30

0.0%
ACCURACY

COMPLETION: **0.0%**

Crack Windows NTLM password hashes

Cracking 3 (Medium)

0 POINTS
OUT OF 45

0.0%
ACCURACY

COMPLETION: **0.0%**

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

Cracking 4 (Hard)

0 POINTS
OUT OF 95

0.0%
ACCURACY

COMPLETION: **0.0%**

Build a wordlist to crack passwords not found in common wordlists

ZIP (Medium)

0 POINTS
OUT OF 30

0.0%
ACCURACY

COMPLETION: **0.0%**

Crack the password of a ZIP archive file

Kali Linux (Hard)

0 POINTS
OUT OF 75

0.0%
ACCURACY

COMPLETION: **0.0%**

Crack the new yescrypt password hashes included in Kali Linux



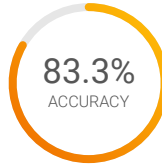


Scanning & Reconnaissance Module

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

769 TH PLACE
OUT OF 6480
NATIONAL RANK

100 POINTS
OUT OF 310
PERFORMANCE SCORE



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

89th National
Percentile

Average: 104.1 Points

Average: 52.9%

Average: 36.4%

Port Scan (Easy)

100 POINTS
OUT OF 100

83.3%
ACCURACY

COMPLETION: **100.0%**

Perform a port scan and identify services running on a remote host

Treasure Hunt (Medium)

0 POINTS
OUT OF 100

0.0%
ACCURACY

COMPLETION: **0.0%**

Perform a directory scan and identify hidden files on a remote HTTP server

Mail (Hard)

0 POINTS
OUT OF 110

0.0%
ACCURACY

COMPLETION: **0.0%**

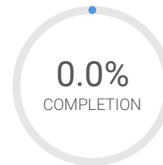
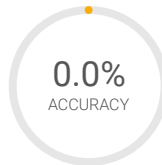
Perform a targeted service scan of a SMTP server to identify the names of users in the server directory

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



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

Average: 66.5 Points

Average: 59.1%

Average: 30.2%

Storage (Easy)

0 POINTS
OUT OF 100

0.0%
ACCURACY

COMPLETION: **0.0%**

Analyze source code on a web page and exploit local authentication measures

Pasta (Medium)

0 POINTS
OUT OF 100

0.0%
ACCURACY

COMPLETION: **0.0%**

Exploit the backdoor vulnerability present in a Node-RED IOT control server

Leek (Hard)

0 POINTS
OUT OF 125

0.0%
ACCURACY

COMPLETION: **0.0%**

Exploit the web server to obtain uninitialized server buffer memory and extract sensitive server-side data such as encryption keys

