

Inaugural MassBay Cyber Range Simulation

Real-World Simulations and Threat Scenarios for Cybersecurity Students at MassBay



INTRODUCTION

State dedication to advancing STEM education forms the cornerstone of Mass STEM Week, which is actively promoted by the Healy-Driscoll Administration, Dr. Patrick Tutwiler, Secretary of Education, and the STEM Advisory Council.

Throughout the year, and especially during this annual campaign, students are encouraged to see themselves in STEM roles, with a goal of diversifying the future workforce and creating opportunities for meaningful careers in an array of sectors such as clean energy, manufacturing, and technology.

A MassBay-specific cyber range event, tied via promotion to Mass STEM Week, was held on October 18th, 2023 as an opportunity to showcase the investments that MassBay has made in planning and developing their Security Operations Center (SOC), the physical training environment, and their cloud-hosted cyber range that represents real-life scenarios.

BENEFACTORS



Healy-Driscoll
Administration
&
Dr. P. Tutwiler,
Sec. of Education



MASSACHUSETTS
TECHNOLOGY
COLLABORATIVE



MassCyberCenter
at the MassTech Collaborative



About CyberTrust and the
Cyber Range P5

TABLE OF CONTENTS

Introduction P1

Kick-off and Participants P2

Inaugural Cyber Range Event
and Photos P3

Event Components P4

Outcomes and Conclusions P5

KICK-OFF

The event started with a dedication from these leaders:

John Petrozzelli, Dir of MassCyberCenter
David Podell, President of MassBay
Terrence Reidy, Sec. of Pub. Safety & Security
Dr. Patrick Tutwiler, Sec. of Education



PARTICIPANTS



CyberTrust Massachusetts facilitated the event, with Meghan Martinez, Director of Cyber Range Programs, as **the lead instructor and facilitator** for the cybersecurity scenarios and simulations.



MassBay Community College served as **the educational and hosting partner via the first Massachusetts SOC and Cyber Range facility to go live** as part of the Healy-Driscoll Administration's initiative under the Biden-Harris National Cyber Workforce and Education Strategy Program. This range, and others soon to be operational, will serve as an integral component of the overall Massachusetts Cyber Ecosystem, fostering a strong network of academic and industry partnerships.



Representatives from the MassCyberCenter **functioned as an event promoter and collaborative partner** for the event. The Center's charter is to enhance opportunities for the Massachusetts cybersecurity ecosystem to compete as the national cybersecurity leader and to strengthen the resiliency of the Commonwealth's public and private communities.

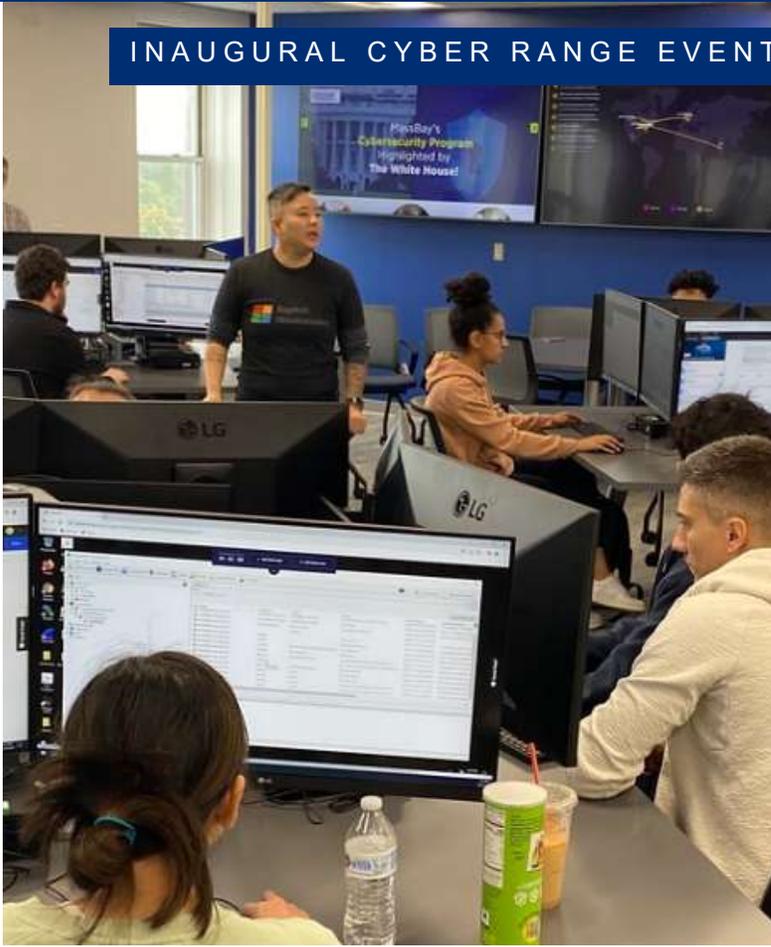


STUDENTS

Sixteen **students proactively elected to participate beyond their standard academic schedule**, underscoring their dedication to educational advancement. This is particularly noteworthy considering that numerous students are simultaneously navigating the complexities of work obligations, caregiving roles, and additional domestic responsibilities.

Additional participants included representatives from the Commonwealth of Massachusetts and several corporate sponsors who have a vested interest in workforce development in the cybersecurity field.

INAUGURAL CYBER RANGE EVENT

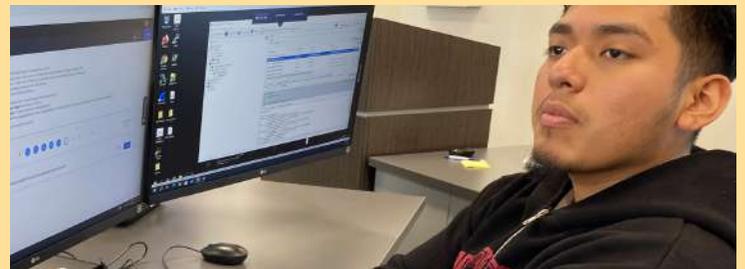


CyberTrust Massachusetts Facilitates First Student Event at MassBay Cyber Range

Security Operations Centers (SOCs) are cornerstones of today's cybersecurity landscape, yet the leap from classroom to SOC can be daunting for aspiring professionals. The kick-off cyber range event at MassBay's Center, facilitated by CyberTrust, serves as an example of an essential bridge between academic rigor and real-world skill sets, easing this transition for students.

This first-in-kind, hands-on, cyber range educational event was aligned to the consortium's strategy to level the playing field by empowering underrepresented students with real-world training and educational resources to help achieve industry readiness upon graduation or certification.

EVENT PHOTOS



EVENT COMPONENTS

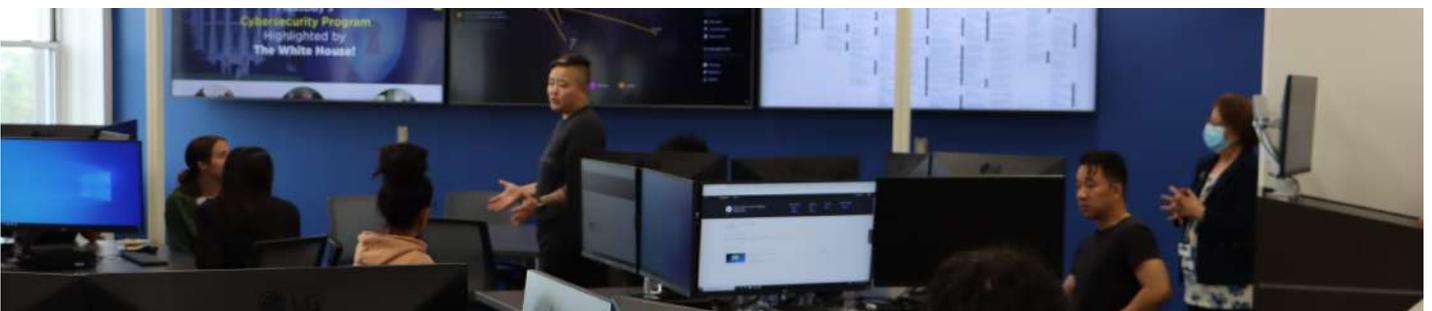


The first segment leveraged an **Open Source Intelligence (OSINT)** investigation framework, facilitating an immersive learning environment for students to grasp the subtleties of how threat actors identify and aggregate information for phishing attacks. This aspect of the training provided students with an experiential understanding of the vulnerabilities inherent in one's digital footprint, **revealing how ostensibly harmless pieces of information could be co-opted for malicious use.** It was an eye-opening experience, underscoring the need for vigilance in the management of personal information online.

The second part of the exercise transported students into the role of **digital forensic investigators operating within a simulated cyber range environment.** Here, the students delved into a post-incident scenario where they were tasked with scrutinizing a computer image. The scenario involved a user who had received and subsequently disseminated a suspicious email.

Utilizing Autopsy, a sophisticated forensic tool, students conducted a detailed examination of the suspicious email and its attachment. **They successfully pinpointed the Command and Control (C2) server with which the email was in communication, and identified the malevolent file responsible for its propagation.**

Through the integrated design of the two-part exercise, the MassBay event crafted a cohesive narrative around both the offensive and defensive aspects of cybersecurity. **The students not only acquired valuable skill sets but also gained a nuanced understanding of the complexities involved in maintaining a secure cyber environment.** This event thus exemplified the comprehensive, real-world cybersecurity training that CyberTrust Massachusetts aims to democratize, particularly for underrepresented student populations within the state's academic institutions.



OUTCOMES



Workforce and Economic Development

These initiatives are a testament to the Commonwealth's commitment to workforce and economic development in the cybersecurity sector. By equipping students with industry-relevant skills, the program is not merely an educational initiative but a strategic move to bolster the Massachusetts economy by helping to create a workforce ready for enterprise roles in Security Operations Centers (SOCs).

This initiative has a long-tail strategy to combine workforce development with an ongoing initiative to ensure Massachusetts businesses have a pipeline of qualified and diligent cyber professionals who call the "The Bay State of Massachusetts" home.

Future Prospects

This program serves as a blueprint for how educational institutions can offer practical, real-world experiences to students, making them employment-ready upon graduation. There is ample reason to believe that it can serve as a replicable model for similar initiatives, both within Massachusetts and beyond.

WITH THANKS

Special Thanks to Secretary of Education, Dr. Tutwiler, MassBay College instructors Shamsi Moussavi and Guiseppa Sena, Secretary of Public Safety and Security, Terrence Reidy, and Assistant Vice President and CIO at MassBay, Michael Lyons. Also to Massachusetts Technology Collaborative including John Petrozzelli, Max Fathy, Meg Speranza, and Nick Butts.

CONCLUSION

This comprehensive case study reflects an exemplary integration of educational rigor, DEI principles, and workforce readiness, set against the backdrop of an evolving cyber landscape.

It proves that multi-stakeholder collaborations can fulfill a spectrum of societal objectives, from DEI and educational advancement to workforce and economic development – ultimately creating a more secure, resilient, and inclusive future.



Reidy (L) and Tutwiler (R) seen with three of the MassBay students who placed in the top 3 of CyberTrust's inaugural CTF.

CYBERTRUST MASSACHUSETTS OVERVIEW

CyberTrust Massachusetts – as a special-purpose organization and not-for-profit partner of the MassCyberCenter has formed a consortium — anchored in community colleges and state universities, and supported by member companies — to create cybersecurity educational programs to best reach underrepresented groups.

By partnering together, we can ensure that any student interested in cybersecurity has options towards a high-wage job with pathways for growth, and that any local government has access to affordable and effective cybersecurity services.

“Like a teaching hospital, but for cyber!”



PETER SHERLOCK
Chief Executive Officer

“This and future Cyber Range events are a game-changer, bridging academic theory and real-world cybersecurity practice. This collaborative effort accelerates student learning and helps to enrich our talent pipeline, contributing significantly to the Commonwealth's workforce and economic development.”

FACT SHEET:



Biden-Harris Administration Announces National Cyber Workforce and Education Strategy, Unleashing America's Cyber Talent



LAURA MILEWSKI

For Consortium Membership, contact:
Laura Milewski
Director of Outreach and Development
laura@cybertrustmass.org
617-680-2203

CYBER RANGE LEADERSHIP



MEGHAN MARTINEZ

GCIH, GCFA, GCLD, CISSP



As a committed advocate for cybersecurity, Meghan ardently believes in the necessity of drawing people from diverse backgrounds and experiences into the field.

She recognizes the sector's potential for providing high-wage, in-demand jobs that have the capacity to create generational wealth, particularly for underrepresented communities.

With a focus on mentorship, sponsorship, and community-building, Meghan has spearheaded initiatives aimed at fostering a more inclusive environment for those who are new or trying to enter the cybersecurity workforce from historically marginalized communities.

Recognizing the multi-faceted nature of the industry's challenges, she is a strong proponent of multi-sector partnerships, involving academia, government, and corporate stakeholders for sustainable outcomes. Beyond that, she is deeply committed to investing in digital equity solutions that increase the pathways available for entering the cybersecurity field.

Grounded in an ethos of inclusivity and equitable opportunity, Meghan continues to be a seminal voice in shaping the cybersecurity landscape for the Commonwealth that welcomes diversity and is resilient in the face of evolving challenges.

CORPORATE MEMBERS

