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PRESIDENT'S CUP
CYBERSECURITY COMPETITION

What Is the President's Cup Cybersecurity Competition?

- America's Cybersecurity Workforce E.O. 13870 mandates DHS to hold the competition annually.

- The goal of the competition is to identify and reward the top cybersecurity talent in the federal workforce.

- Any federal executive department or agency employee can participate, including uniformed service members.

- Participants can compete as an individual, on a team of up to five members, or both.

2020 Winners

Individual Track A	Individual Track B	Team
NCIS	7 IS USAF	780th Military Intelligence Brigade

President's Cup Format

- The competition has three rounds – two qualifying rounds and finals.

- Qualifying rounds
  - Must succeed in first qualifying round to participate in second round
    - Teams – best team from each department, plus top 20% based on score
    - Individuals – top 100

- Final round
  - Top 5 teams and top 10 individuals in Tracks A/B
  - Day 2 of teams finals livestreamed

Considerations for President's Cup Platform

- Accessible anywhere from a standard web browser
  - Minimum hardware/software requirements for end users

- Scalable to support potentially thousands of concurrent participants across the federal .gov/.mil

- Open-source resources
  - Gameboard - https://github.com/cmu-sei/Gameboard
  - TopoMojo – https://github.com/cmu-sei/TopoMojo
  - Identity - https://github.com/cmu-sei/Identity

President's Cup Challenge Development

- Each challenge is tied to a NICE work role

- Built within TopoMojo
  - Multiple variants of each challenge created and deployed at random
  - "Infinity challenges" – variants within challenge randomized by TopoMojo

- QA for each challenge
  - Playtesting conducted by federal partners

- Session timer
  - Influences challenge development and competitor strategy

President's Cup 2019 Wrap-Up

- Two tracks – teams and individuals

- Two qualifying rounds per track
  - "Game-show" style
  - Held remotely over 10 days with 8 hour time limit

- Challenges from across NICE Cybersecurity Workforce Framework

- Final round consisted of 3-D immersive "Escape Room"

Teams Round 1 Gameboard

| ANALYZE AND INVESTIGATE	COLLECT AND OPERATE	OPERATE AND MAINTAIN	PROTECT AND DEFEND	SECURELY PROVISION
250	250	250	250	250
500	500	500	500	500
1000	1000	1000	1000	1000

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President's Cup 2020 Wrap-Up

- Multipart challenges with partial credit

- Individual tracks
  - Track A – incident response, forensics
  - Track B – vulnerability analysis, exploitation analysis

- Remote finals
  - Cloud hosted "Save the World" game
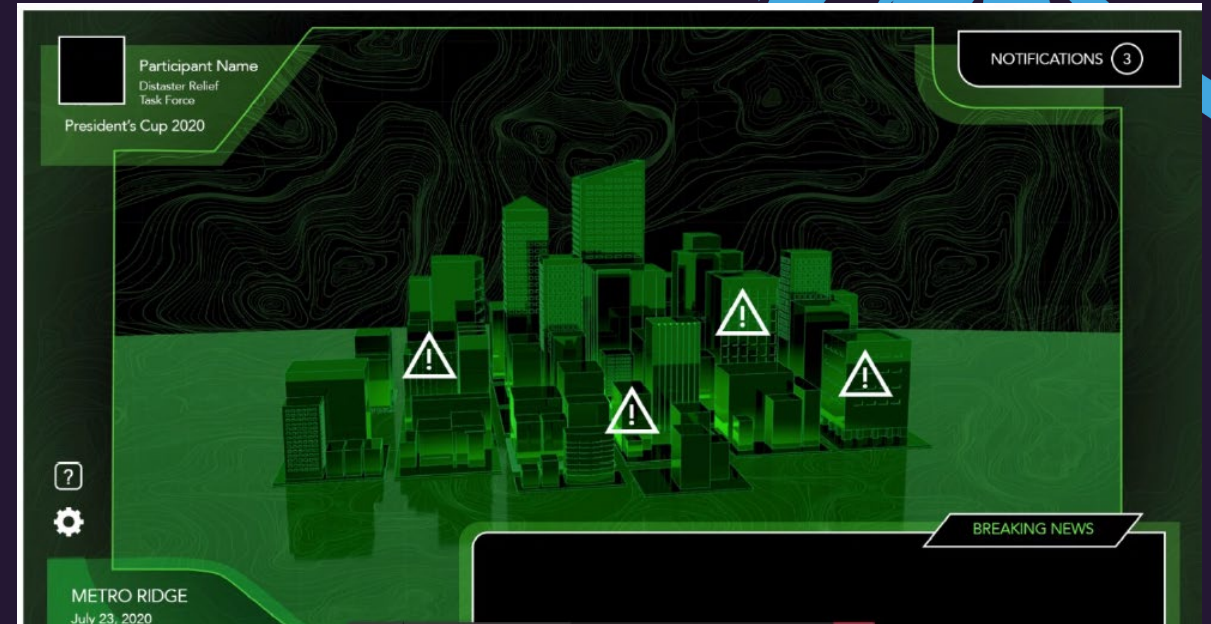
What Is the Impact of the President's Cup?

- The Secretary of DHS and CISA Director have used the President's Cup as a platform to announce new cybersecurity initiatives.
  - [Secretary Mayorkas Delivers Remarks at the 2nd Annual President's Cup Cybersecurity Competition | Homeland Security (dhs.gov)](#)
- 2019 Awards Ceremony was hosted in EEOB with Vice President Pence.

- 2020 Awards Ceremony featured Deputy National Security Advisor for Cyber and Emerging Technology.

2019 Awards Ceremony with VP Pence.

President's Cup 2021

- **Continue using NICE work roles for teams and individuals tracks**

- **Updated gameboard**

- **New teams finals cyber video game**
  - **Tune into the livestream to learn more!**

2021 COMPETITION TIMELINE

	TEAMS COMPETITION	INDIVIDUAL COMPETITION
REGISTRATION	August 30 – September 20	August 30 – October 4
QUALIFYING ROUND 1	September 13 – 20	September 27 – October 4 (Both Tracks)
QUALIFYING ROUND 2	October 18 – 25	November 1 – 8 (Both Tracks)
FINALS	December 8 – 9	December 6 – 7

Gameboard Updates in 2021

- **Consolidated gameboards into a single application**

- **Integrated challenge metadata**

- **Migrated email functionality away from gameboard**
  - **PII protections**

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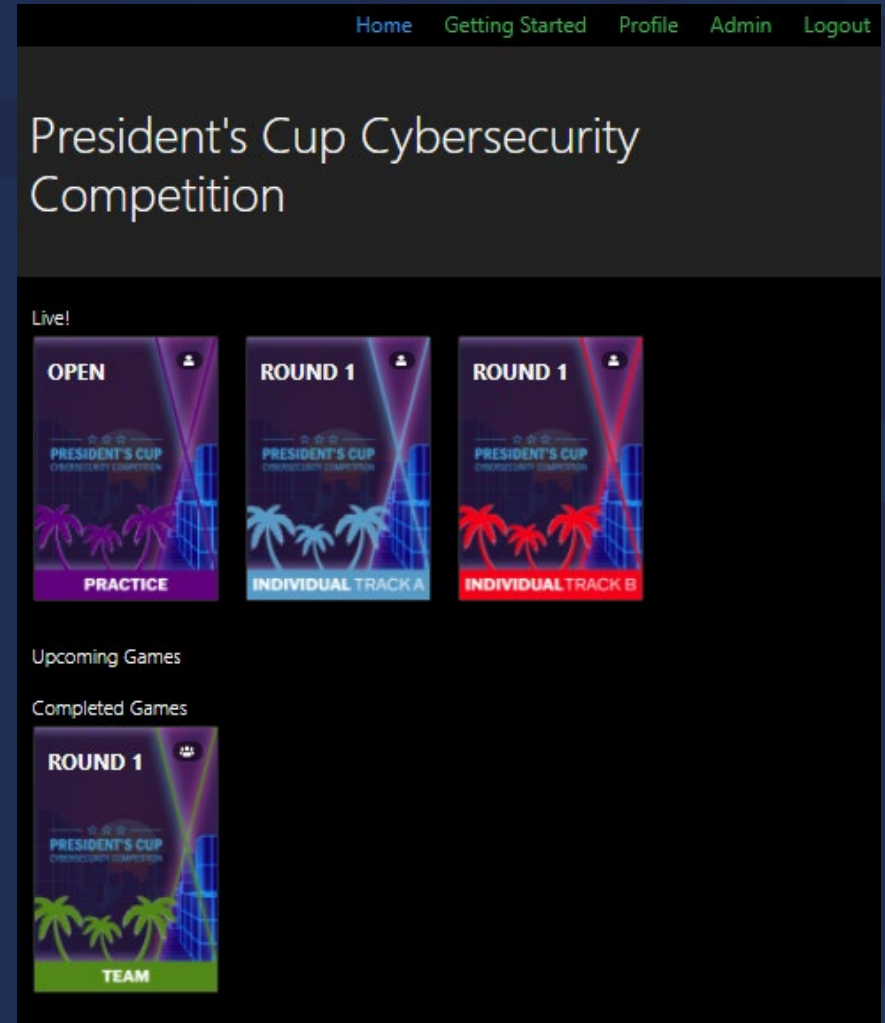
Outlook for President's Cup

- **Expand use of President's Cup challenges**
  - Hold additional internal competitions for federal workforce.
  - Make existing challenges available to provide training opportunities through simulated real-world environments.

- **Releasing source code of challenges to public after each competition**

- **Foundry Appliance – Announced at 2021 Blackhat**

PCCC Practice Area

Practice demo challenges and content from past President's Cup competitions

2021 Practice
Gameboard

Challenge Archive
Gameboard

Open Source Challenges
GitHub

Walkthrough Videos
YouTube

Foundry Appliance

- Preconfigured VM that packages President's Cup applications

- Single-host Kubernetes cluster to replicate production deployment

- Uses VMware ESXi to serve virtual challenge environments

- https://github.com/cmu-sei/foundry-appliance

Carnegie Mellon University
Software Engineering Institute

Foundry Appliance v0.4.0

Welcome to the Foundry Appliance. This virtual machine hosts workforce development apps from the Software Engineering Institute at Carnegie Mellon University.

Getting Started

The appliance advertises the *foundry.local* domain via mDNS. All apps are served as directories under this domain.

To get started using the virtual appliance:

1. Download root-ca.crt and trust it in your keychain/certificate store. This removes browser certificate warnings.
2. Navigate to any of the apps in the following two sections.
3. Unless otherwise noted, the default credentials are:
   ```
   user: administrator@foundry.local
   pass: foundry
   code: 123456
   ```

Foundry Apps

The following Foundry applications are loaded on this appliance:

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