

# AFRL

## Hack-A-Sat 4

Space Cyber Resilience Via Prizes For Advanced Technology Achievements

### WHAT IS HACK-A-SAT?

As our lives become increasingly dependent on technologies that lie in space, it is imperative that we do what it takes to secure our universe. The Department of the Air Force presents Hack-A-Sat, a Capture the Flag style hacking competition designed to inspire the world's top cybersecurity talent to develop the skills necessary to help reduce vulnerabilities and build more secure space systems.

The qualification round took place April 1-2, 2023. Five teams advanced. Next up...

### Finals at DEF CON 31

Aerospace Village  
August 11-13, 2023



### WHY IS THE GOVERNMENT INVESTING IN THIS?

When it comes to securing space, the stakes are high. Everything from our GPS to our financial transactions to air traffic control depends on space systems that can be vulnerable to attack. Hack-A-Sat is building a non-traditional community of security researchers, government, industry, and academia working together to inform and improve the cyber resilience of our space systems both on the ground and in orbit.

Overall, the Department of the Air Force aims to be more conscientious during the design and development process of building space-based capabilities by utilizing adversarial thinking throughout the acquisition lifecycle from research and development to operational implementation. By utilizing Prizes for Advanced Technology Achievements, the Department of the Air Force will stimulate innovation by applying non-traditional approaches to technology challenges.

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# THE AIR FORCE RESEARCH LABORATORY

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## WHY HAVE WE ACCOMPLISHED?

Together with our partners we've built and hosted the first ever hacking contest that focuses on space technologies. Over the three years of Hack-A-Sat, we have:

Strengthened and expanded our alliances with over 100 DoD, academic, industry, international partners

United the digital expertise among the cybersecurity and space communities by curating a community of over five thousand global security researchers contributing to novel approaches to securing the space cyber domain

Informed the development of more secure and resilient space hardware, software and operational education for the Department of Defense

Established the development of a novel training curriculum for the next generation of cyber warriors to defend the Nation's space assets

Drew international attention to the Department of Defense's commitment to space cybersecurity and innovative approach with articles in Wired, Tech Crunch, Bloomberg and Air Force Magazine

Identified unforeseen research areas in the space security domain

Developed, tested and will soon launch the first ever on-orbit cybersecurity satellite designed to enable cybersecurity competitions, exercises, hackathons, and training opportunities that improve the cyber resilience of space systems

## HACK-A-SAT TRAJECTORY

**DESIGN** | **BUILD** | **LAUNCH**

Multi-year plan to engage the DEF CON community in the key phases of a USSF Space Vehicle lifecycle as a means to educate the community and leverage lessons learned in future and current mission system architectures.

### Hack-Sat 1

Flatsat based competition with one indirect On-Orbit challenge.

### Hack-A-Sat 2

1st ever attack/defend competition on flatsats with digital twins to emulate commands for all competitors.

### Hack-A-Sat 3

Attack/defend style competition on Moonlighter-based digital twin. Designed and built Moonlighter, the world's 1st hacking sandbox in space. The most realistic space hacking environment leading up to HAS4.

### Hack-A-Sat 4 & Beyond | Project Moonlighter

The world's 1st hacking competition in space hosted on Moonlighter, purposely designed, and launched to advance the cybersecurity community. Moonlighter makes possible future hacking competitions and training by presenting highly realistic cyber challenges on a real on-orbit satellite.



**Learn More About Hack-A-Sat**

Visit [hackasat.com](http://hackasat.com) for, videos, challenges, and more!

