

SPACE CYBER SECURITY WATCH N°4



TLP WHITE

June 14, 2021 - Space Cyber Security Community

www.spacesecurity.info

You will find below the Space Cyber Security Watch N°4 (June 14, 2021). In this paper, you will find everything that has caught our attention since the last time: news, articles, papers, Space CTI, videos, webinars, events, attacks, podcats ...

This work is not exhaustive, so comments, remarks and observations are welcome.

Table of contents

1. Articles	2
2. Papers	4
3. Videos	5
4. Webinars	5
5. Podcasts	5
6. Past Events	6
7. Upcoming Events	6

1. Articles

May 2021

- (FR) [Open source : les devs d'Ingenuity et de Perseverance s'associent à une entreprise de drones pour créer une architecture ouverte](#). Une société qui conçoit des moteurs de précision utilisés dans l'exploration de Mars et de la Lune fait équipe avec une société d'architecture de drones open source. Maxon dont la technologie permet à l'hélicoptère autonome Ingenuity et au rover Perseverance d'explorer Mars, annonce un partenariat stratégique avec Auterion, la société qui construit un avenir open source et software defined pour les flottes de drones d'entreprise.
- (EN) [Open source: Mars explorer developer teams with drone company on open architecture](#). The future of drones is open source. But Is Open Source Software More Secure?
- (EN) [Europe picks EuroQCI satellite quantum communications consortium](#). "The key element is the possibility of using quantum technologies to exchange encryption keys, guaranteeing complete communication security in management of vast quantities of data"
- (FR) [Un consortium d'acteurs européens du numérique conçoit le futur Internet quantique de l'UE](#). La distribution de clé quantique (QKD – Quantum key distribution) sera le premier service à utiliser ce réseau. Le service QKD transmettra des clés de chiffrement par le biais de canaux de communication quantique sur des liaisons terrestres en fibre optique et des liaisons laser spatiales.
- (FR) [Risque spatial : Axa XL s'associe au français SpaceAble](#). Axa XL annonce avoir signé un partenariat avec la start-up française SpaceAble afin d'améliorer la couverture des opérateurs de satellites via la collecte, le traitement et la modélisation de données spatiales.
- (EN) [SpaceX, OneWeb and the 'Mega' Effect of Mega-Constellations on International Space Law](#). For instance, OneWeb's satellites have been launched from the Russian spaceport Vostochny Cosmodrome since 2019: however, the Russian government did not allow OneWeb to provide internet connectivity services in Russia, citing national security concerns
- (EN) [Viasat to Integrate Encryptor into Link 16 LEO Spacecraft](#). Viasat plans to integrate its In-line Network Encryptor (INE) into the Link 16-capable Low Earth Orbit (LEO) satellite that it is developing for the U.S. Air Force Research Laboratory.
- (EN) [New Space Players Take Stock of Headline-Grabbing Security Breaches](#). New Space panel discussion at CyberSat Digital.
- (EN) [CyberSatDigital Speakers: "Red-Teaming" Helps Industry Understand, Detect Evolving Threats](#). Red team exercises – or, simulated cyber attack scenarios run by internal IT groups and/or

external third parties – can help satellite companies keep pace with constantly evolving cyberattacks, according to speakers on CyberSatDigital's opening panel

- (EN) [Laying the IT Groundwork for a Crowded Space Economy](#). If we want to make sure the space economy takes off, we must lay a reliable terrestrial groundwork now. That means putting an IT architecture in place that's simple, safe, secure, and scalable to accomplish several objectives simultaneously.
- (EN) [Septentrio Receiver Authenticates Galileo's First End-to-End Encrypted signals](#). Septentrio, a company based in Belgium that designs GPS/GNSS positioning technology, announced that its receiver has successfully authenticated navigation data of the first OSNMA-encrypted GNSS satellite signal.
- (EN) [Cybersecurity Influencers React to Space Policy Directive 5](#). The directive has been well-received among space cybersecurity influencers who believe this will lead to a much more secure environment for satellite communications.
- (EN) [SpiderOak Wins US Air Force SBIR Contract for OrbitSecure](#). Privacy technology company SpiderOak has won a U.S. Air Force small business contract to adapt its OrbitSecure protocol to military use. OrbitSecure is an Intelligence, Surveillance, and Reconnaissance (ISR) collection security system that can manage spacecraft and payloads when multiple parties are involved.

June 2021

- (EN) [House bill would designate space as critical infrastructure](#). Let's do this! Space needs to be designated Critical Infrastructure
- (EN) [General Atomics Partners with Space Development Agency to Conduct Space-to-Air Optical Communication Experiment](#). SDA and General Atomics have expanded the Laser Interconnect and Networking Communication System (LINCS) program to include space-to-air optical communication demonstrations. SDA and GA will now establish and evaluate links between space and an airborne MQ-9 Reaper, in addition to the planned space-to-space and space-to-ground activities. This experiment leads to a fight where airborne assets can fly without relying on radio frequency, providing Low Probability of Intercept/Low Probability of Detection and increasing capabilities for warfighters around the world!
- (EN) [SDA & DARPA: June Demos To Prove Optical Sat Link Capability](#). « Getting a laser beam on a spacecraft to point to a laser receiver on another spacecraft accurately enough with the right power levels, the right waveforms, etc., – it's not an easy thing, » said General Atomics VP Nick Bucci.
- (EN) [General Atomics to Demo SDA Space-to-Air Optical Communication](#). General Atomics' electromagnetic systems group

has received a contract to demonstrate optical communication between a low-Earth orbit satellite and an unmanned aerial vehicle for the Space Development Agency.

- (EN) [SpaceChain Sends Ethereum Cryptocurrency Tech into Space](#). SpaceChain has successfully sent a blockchain-enabled payload into space on Thursday aboard a SpaceX Falcon 9 rocket launched from NASA's Kennedy Space Center.
- (EN) [US Military Places a Bet on LEO for Space Security](#). U.S. Defense Department agencies are working with a who's-who of military contractors, commercial satellite operators, and technology companies to finally demonstrate the feasibility of a proliferated constellation of satellites in Low-Earth Orbit (LEO).
- (EN) [Hacking space: How to pwn a satellite](#). Hacking an orbiting satellite is not light years away – here's how things can go wrong in outer space
- (EN) [Momentus Reaches National Security Agreement, Co-Founders Divest from Company](#). Momentus has made a concrete step forward with a after a turbulent few months dealing with U.S. national security concerns with the business. The in-space transportation company announced Wednesday that it has signed a National Security Agreement (NSA) with the U.S. Department of Defense and Department of the Treasury on behalf of the Committee on Foreign Investment in the United States (CFIUS).

2. Papers

- (EN) [Autonomous Cyber Capabilities under International Law](#) : New Book on autonomous cyber capabilities under International Law now available in CCDCOE Library
- (EN) [On Detecting Deception in Space Situational Awareness](#) (James Pavur, Ivan Martinovic). This paper has been accepted for the 16th ACM ASIA Conference on Computer and Communications Security (ACM ASIACCS 2021), 7-11 June 2021, Virtual event. This paper offers one of the first considerations of defense techniques against SSA deceptions. Building on historical precedent and real-world SSA data, they simulate an attack whereby an SSA operator seeks to disguise spy satellites as pieces of debris.
- (EN) [New ESPI Yearbook edition](#). The Yearbook on Space Policy is an annual publication of the European Space Policy Institute (ESPI). p.93 you can find a small section on GSaaS (Ground Station as a Service).
- (EN) [An overview of protected satellite communications in intelligent age](#). Our focus is placed on the critical technologies and practical applications, and finally discuss remaining challenges and look forward to the future research directions. It is undoubted that the

protected SatCom is one of the most important systems in military communications, both now and in the future.

3. Videos

- (EN) [Locked Shields 2021](#). Several Space ISAC members participated in Locked Shields 2021 and threats to space injects were considered because of their involvement. The largest and most complex international live-fire cyber defence exercise in the world, Locked Shields 2021 was organised by NATO Cooperative Cyber Defence Centre of Excellence (CCDCOE) from April 13th to 16th. The exercise included new cyber-physical systems and integrated technical and strategic elements, enabling participating nations to practice the entire chain of command in solving a large-scale a cyber incident. This year was unique from other iterations of Locked Shields in that for the first time the organisers will also be participating remotely rather than gathering in Tallinn as they have done in previous years.
- (EN) [Space Iceland May meeting](#) with Berenike Vollmer, researcher on Cybersecurity Gaps.
- (EN) [CYSAT '21: C. Beek & E. Carroll « Space 4.0: Another cybercriminal portal? »](#). Space 4.0 encompasses all recent trends such as GSaaS, SataaS or edge computing making modern satellites (almost) an extension of the cloud!
- (EN) [On Detecting Deception in Space Situational Awareness](#). Presentation Video from James Pavur (Oxford University) for ACM ASIACCS 2021

4. Webinars

- (EN) (to review) [DevSecOps: An essential path for protecting intelligent space systems](#) (Thursday June 10). DevSecOps has advanced as a critical methodology for how manufactures develop software, from the development of code to its deployment into production

5. Podcasts

- (EN) [Mars Goes to Shell](#). About this Episode : Tim Canham, Mars Helicopter Operations Lead at NASA's JPL joins us again to share technical details you've never heard about the Ingenuity Linux Copter on Mars. And the challenges they had to work around to achieve their five successful flights.

- (EN) [Space Policy Pod](#): Episode 21 with Sean O’Keefe (Former Administrator, NASA). Given the current real-world challenges confronting all of us, AIAA has joined the MITRE Corporation and the U.S. Chamber of Commerce to produce this podcast series to examine events and ideas affecting the space sector.

6. Past Events

- June 3, 2021 : [Efficiently Integrating Software and Digitalisation Technologies to Optimise and Enhance the Space Technology Manufacturing Chain](#)
- June 8-10, 2021 : [ACM ASIACCS 2021](#) with James Pavur
- June 7-8, 2021 : [Global Space & Technology Convention \(GSTC\) 2021 | SSTL](#). GSTC is Asia’s Premier Space & Technology event, bringing you the latest technology news, what’s hot in the satellite scene and space technology updates. Over 10 years in the making, GSTC has taken up a crucial role in highlighting how space technology and satellite communications will shape our lives here in Asia. From learning how satellite communication and data can transform urban cities, to its applications in maritime surveillance, security and IoT.

7. Upcoming Events

- June 14, 2021 : [Secure Connectivity Initiative](#). You want to hear where we stand on the Secure Connectivity Initiative and how NewSpace made in Europe can contribute? Don’t miss the opportunity to listen to European Commissioner Thierry Breton’s dialogue with start-ups and SME on ways and means to inject NewSpace concepts and technologies into the Secure Connectivity Initiative!
- June 15, 2021 : [Keeping Secrets in Space: Exploring the Unique Challenges of Cybersecurity in Space Systems](#). Our voices may not travel in the vacuum of space, but some of our most sensitive secrets do. As the United States continues to increase its reliance on space-based systems for national defense and commerce, government and industry must work together to address the unique challenges of securing digital space systems.
- June 22, 2021 : [3rd Summit for Space Sustainability](#). The Summit for Space Sustainability is a high-level, multi-day event focused on developing solutions for space sustainability, hosted by the Secure World Foundation. The last year changed the world dramatically, offering an opportunity to build back or make changes. This year’s Summit for Space Sustainability invites a diverse group of international experts to look across a range of economic, security,

and environmental issues to evaluate how space capabilities can be used to meet long-standing and new global challenges.

- June 23 – 14, 2021 : [Milsatcom USA](#) (online virtual event , USA) – To achieve and maintain overmatch against its adversaries.
- June 24, 2021 : [NCCoE Satellite Ground Segment Cybersecurity Workshop](#) with National Institute of Standard and Technology's (NIST's) National Cybersecurity Center of Excellence (NCCoE)
- July 23, 2021 : [SpaceTech Symposium: Challenges and Monetization of Space Security and Situational Awareness](#)
- September 1 – 3, 2021 : [Geopolitics and Global Futures Symposium 2021](#). The 2021 Geopolitics and Global Futures Symposium is now open for applications! [Module 1 is about « The Future of Outer Space Security »](#)
- September 7-9, 2021 : [Joint Air & Space Power Conference 2021](#) – Delivering NATO Air & Space Power at the Speed of Relevance. The security challenges to NATO did not just get put 'on hold' as our individual countries turned inward to battle the existential threat to survival at home. Indeed, the global pandemic also presented an opportunity to NATO's near-peer adversaries to manoeuvre and attempt to gain an advantage.
 - [Security Convergence for Air and Space Power Resilience in Three Dimensions](#)
 - [NATO Electronic Warfare and Cyberspace Resilience](#)
 - [Avoiding Cyber Forever Wars – Toward a Joint All Domain Whole of NATO Cyber Conflict Deterrence Strategy](#)
 - [Cyberspace and Joint Air and Space Power – Any Speed; Always Relevant](#)
- September 7-10, 2021 : [2021 SATELLITE Experience](#) with Satellite Cybersecurity session.
- October 5 – 7, 2021 : [CyberSatGov](#) – To bring together the satellite community with the government and military markets to have a comprehensive, progressive discussion about cybersecurity.
- October 19 – 21, 2021 : [11th IAASS conference : Managing Risk in Space](#) – The 11th [IAASS](#) Conference "Managing Risk in Space", organized in cooperation with the Japan Aerospace Exploration Agency (JAXA) is an invitation to reflect and exchange information on a number of space safety and sustainability topics of national and international interest.
- October 25-29, 2021 : [IAF's IAC 21 in Dubai – 72nd International Astronautical Congress 2021](#) (Dubai, United Arab Emirates) will have two security sessions :
 - D5 is 54th IAA Symposium on Safety, Quality and Knowledge Management in Space Activities (D5.4 will be

more technical : Cybersecurity in space systems, risks and countermeasures)

- E9 is IAF Symposium on Space Security (E9.2 is more strategic and legal focused : Cyber-based security threats to space missions – establishing the legal, institutional and collaborative framework to counteract them)
- Papers have been selected and the program will be published shortly

This work is not exhaustive, so comments and observations are welcome.



www.spacesecurity.info