

Next Generation Space Defense

MILSATMAGAZINE

May 2024



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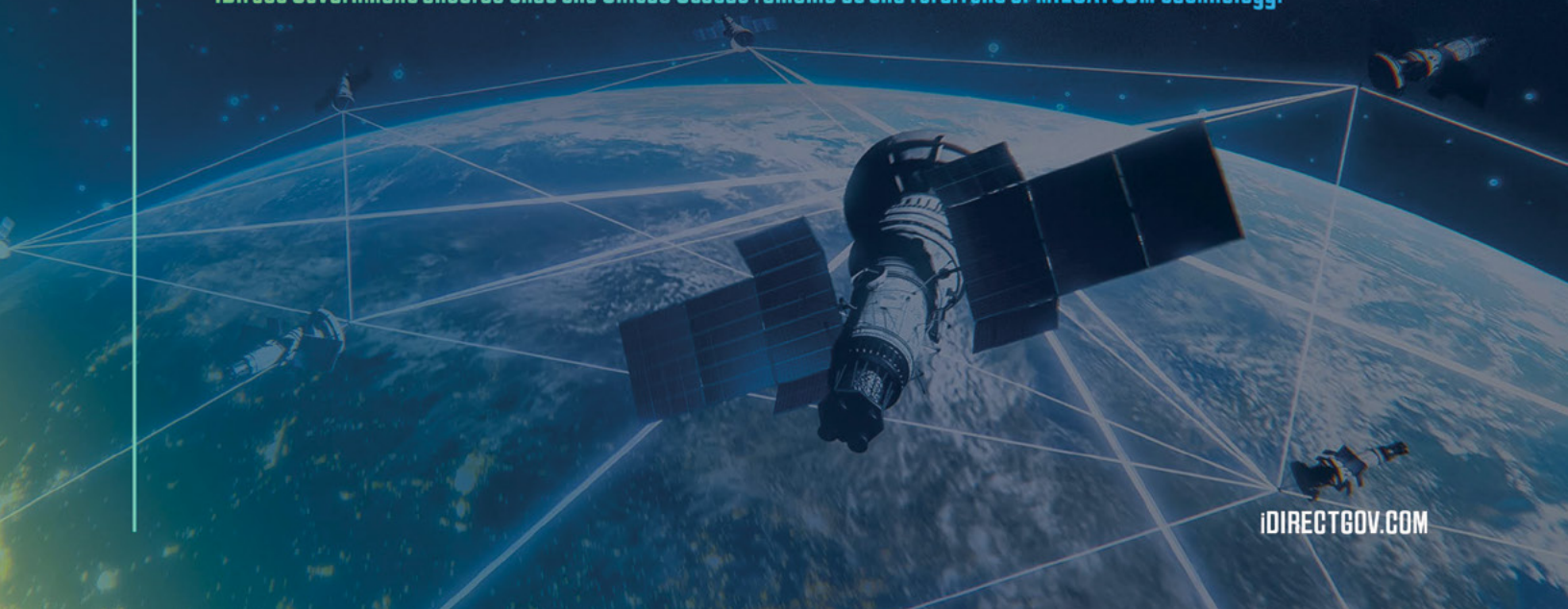
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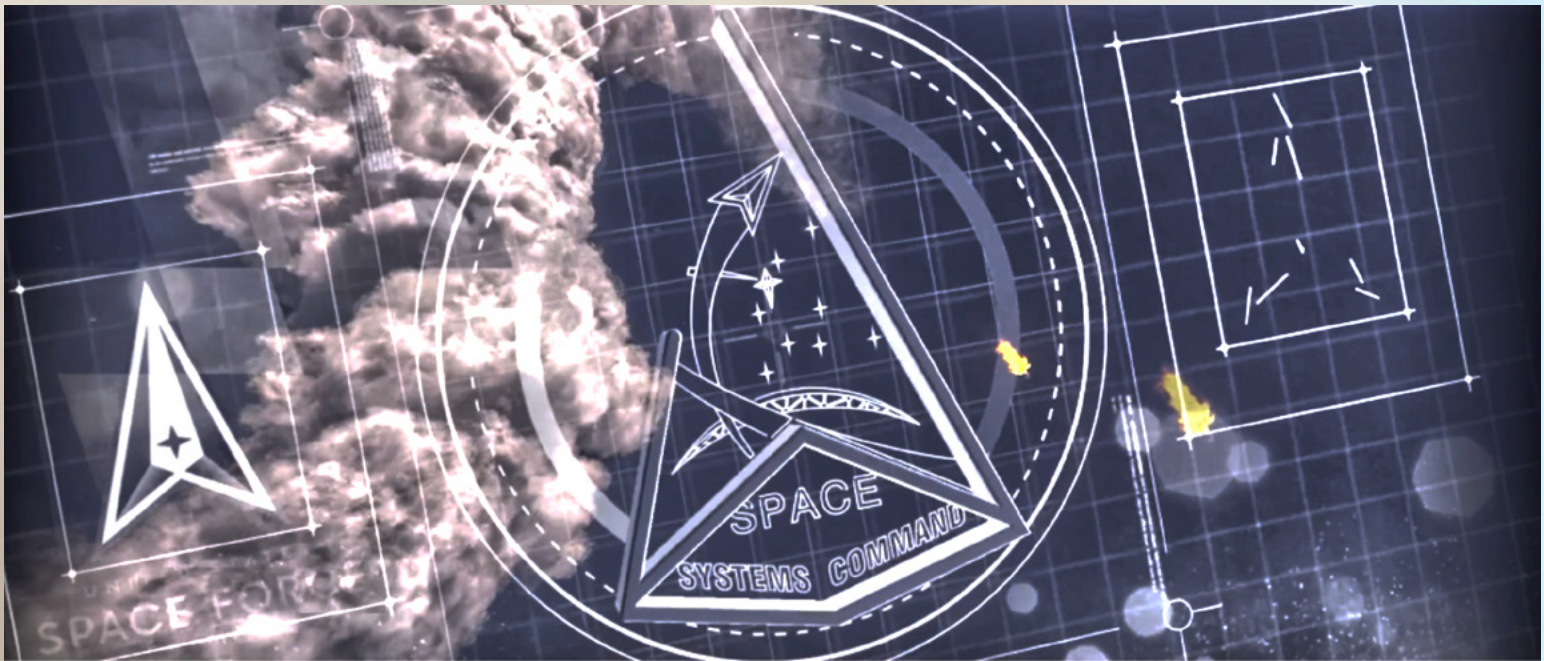


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— SPACE SYSTEMS COMMAND — BRIEFING #1 — INTERNATIONAL AFFAIRS: ALLIED BY DESIGN

Author: Lisa Sodders, Space Systems Command Public Affairs

Space Systems Command’s “*Allied by Design*” approach to international partnerships is continuing to pay dividends with new acquisition partnerships, international visitors, and exciting opportunities for collaboration.

“From a Great Power Competition perspective, the more allies we have, the more of a deterrent we are,” said **Deanna Ryals**, Director, International Affairs (IA) at SSC. “It’s one thing if a near-peer adversary is looking at coming after the United States, but if they’re looking at the United States plus Canada, plus Australia, plus Poland, plus the United Kingdom, plus all of our other partners, we hope that it makes them wake up and say, ‘Today is not the day.’”



Deanna Ryals

IA’s *Allied by Design* concept seeks to engage allied nation partners in discussions as early as possible.

“The more we bring our allies and partners into our conversations, our problem-solving, and our acquisition decisions, the more we’re going to be able to solve more problems much faster. We’re looking from the perspective of a collective whole of countries on how to get after the threat – that’s going to give us an asymmetrical advantage that no one else has,” Ryals said.

Currently, SSC is engaged with 28 countries and has international affairs professionals stationed in Australia, Belgium, Germany, and Japan. Since its establishment in 2013, SSC’s International Affairs office has completed 39 agreements with 16 countries, valued at up to \$5.4 billion.

That’s not to say IA is without its own particular set of headwinds.

“Classification has certainly been a problem and it’s really hindered us from doing a lot of the work with our partners that we want,” Ryals said. “But organizations such as the U.S. Office of the Secretary of Defense – Space have been pushing to update the policy to allow us to get that classification brought down lower.”

ITAR (the International Traffic in Arms Regulations, a series of U.S. government regulations that control the import and export of defense products) also continues to be a challenge.



U.S. DEPARTMENT OF STATE
Directorate of Defense Trade Controls

A third hurdle is cultural. Some officials are still uncomfortable with the idea of bringing international partners into highly-classified programs. Indeed, the United States itself has historically struggled with wanting to get problems solved first before bringing allies on board, Ryals said.

“But today, that’s too late,” Ryals said. “Our allies and partners often have acquisition timelines that are similar to ours. If we wait two, three, four years while we’re trying to figure out the problem before we start talking to them, by the time we get to them, we’re asking them to run fast to catch up to us and that’s really difficult for our partners. Plus, we’re losing out on those innovative thoughts by not bringing them into the problem-solving areas early. We’ve got to bring them in at the very beginning.”

One of the most recent milestones for IA is the **Deep Space Advanced Radar Capability (DARC)** initiative, a trilateral agreement between the United States, Australia and the United Kingdom that will deploy three ground-based radars in the three nations. These radars will provide 24/7 coverage around the globe, looking into the **Geosynchronous Orbit (GEO)**, said **Maj. Nicholas Yeung**, Chief, SSC’s International Affairs Capabilities Development Division.



Major
Nicholas Yeung

“It’s a capability that is unprecedented – having the ability to have 360-degree global coverage, using our allies, is kind of a game-changer,” Yeung said.

The formal agreement was just announced in December of 2023, following the signing of a **Memorandum of Understanding (MoU)** between the three nations. Australia and the United Kingdom will contribute as much as \$2.2 billion to the effort and all three sites will be operational by the end of the decade, Yeung said.

Another success story is the **Responsive Space Capabilities** MoU, an international agreement between 11 countries — Australia, Canada, Germany, Italy, the Netherlands, New Zealand, Spain, Sweden, the United Kingdom, and Norway — that supports Research, Development, Test, and Evaluate cooperative efforts, *Yeung* said.

This agreement has three active subordinate project arrangements.

“Not every participant country needs to be on every subordinate project, but the project arrangements are written to address specific, critical technology, such as laser crosslinks, rideshare, data fusion,” Yeung said. “And recently, we added a new project arrangement that addressed hyperspectral imaging as well as an extension of the arrangement covering data fusion.”

Laser crosslinks allow satellites to communicate with each other in space, using lasers. Rideshare programs allow multiple payloads — sometimes from different countries — to be launched into orbit on a host nation’s rocket. Data fusion is the process of correlating and “fusing” multiple data sets to make sense of the information and detect patterns. Hyperspectral imaging collects and processes information from across the electromagnetic spectrum and could be particularly useful in the area of surveillance and reconnaissance, due to its ability to collect data in all weather.

“Alone, we can’t cover every aspect of space, so having a huge network of like-minded countries to be able participate (in discussions) and address some of these other niche technologies is huge,” Yeung said.

Japan, for example, has made addressing the problem of space debris a priority and is working on several potential technological solutions, *Yeung* noted. There’s also the **GCC Satcom Support Partnership** (Global Commercially Contracted Satellite Communication Partnership), a bilateral agreement with Luxembourg, under the auspices of NATO, where SSC can leverage NATO as the contracting arm to procure satellite services.

“This is a complete departure from how the U.S. Department of Defense space does acquisitions in contracting,” Yeung explained. “We’re leveraging NATO to be our contracting officer in delivering a product — the only requirement to be able to do that is to have an agreement between two NATO partners, in this case, the U.S. and Luxembourg. We want to use this as a template, to not just move fast, but to move fast together with our allies. We’re all looking at that 2026 line in the sand — we have to take calculated risks, we have to have our partners on board.”

Allied bilateral engagement is critical, and SSC/IA is expanding — with a new division called **Strategy and Plans** — to meet the growing demand for forums and working groups for allies to meet and discuss strategies and plans, *Yeung* said.

“It’s having these early conversations so we can discuss technologies and standards that allies can build to,” Yeung said. “They’re looking to the U.S. to be the lead for these standards because of our robust space program and sharing that with our allies allows them to enter requirements, send that up through their governance, and coordinate their budget to contribute to our architecture or invest in areas the U.S. is not looking at.”

Two other important assets are the **Unified Data Library** (UDL), and the **Allied Exchange Environment** (AXE). The UDL is the USSF’s Cloud-based data repository that hosts more than 300 different data types, including data for space domain awareness as well as commercially acquired data, enabling the Space Force, government and allied partners access to a multitude of data sources from a centralized repository.

AXE is a new SSC project designed to create near real-time, bi-directional, machine-to-machine data sharing with international allies. AXE will create a standardized interface between the U.S. and any foreign allied partner for highly valuable, two-way operational data distribution. Leveraging the Unified Data Library’s (UDL) capabilities and cybersecurity best practices to reduce and/or eliminate current data sharing bottlenecks, AXE would enable near real-time data sharing from the Secret UDL currently unavailable to partners.

“The UDL and AXE have given us another arrow in our quiver to be able to partner with other countries,” Yeung said. “When our partners are able to plug into the AXE and have their access managed and automated, and having this machine-to-machine link that could be huge in joint war-fighting.”

Another exciting development is the **Space Data Network: the Department of Defense (DoD)** is looking to create a proliferated **Low Earth Orbit (LEO)** SATCOM constellation from several potential vendors, together with foreign allies and partners.

“Because our commercial space industry has become so mature (other nations) are able to acquire space capabilities through FMS (foreign military sales) from us, or DCS (direct commercial sales) directly from our vendors,” Yeung said.

Foreign military sales are nothing new — the U.S. Air Force has been doing them since the 1970s — but it is a relatively new concept for the U.S. Space Force, said **Maj. Simone Zacharias**, chief of foreign military sales for SSC.

“We are now more willing to look at exporting some of our space capabilities,” Zacharias said. “We had locked down space power for so long — since the Cold War — but now we understand with Great Power Competition that we are not as strong alone as we are with our international partners and allies.”



SSC/IA personnel attend the 37th NATO SATCOM Capabilities Team in Washington, D.C., with NATO partners.

USSF has been exporting some technology from some of its legacy offices such as GPS for a while and is working on exporting larger space-capable systems to international partners as well as supporting some of the current conflicts, such as the war in Ukraine, Zacharias said.

The United States has long enjoyed being the dominant power in space, but that doesn't mean it is the only nation discovering new and innovative space technology. If other nations have new and innovative technology, the USSF wants to be in a position to acquire it, too, Zacharias said.

"There's a lot of strong space industry outside the U.S. as well – the more that we know about each other the more we can make a joint decision about where to go, going forward," Zacharias said. "I think that everyone's coming more to the table to work together and really understanding that's it's an all-for-one situation."

In the past, it was only large governments such as the United States that had the funding and the infrastructure to procure space technology, Zacharias noted, but today there is so much more commercial space industry available. Other nations are recognizing the advantages space can bring to their countries from a national security and economic standpoint and are standing up their own space commands and space-trained forces.

"Our international partners are becoming more capable of building military space capabilities," Ryals said. "If a key ally like Australia or Canada or the United Kingdom can build a capability that the U.S. can use, then we can take those dollars and spend them elsewhere. That's giving us a lot to think about going forward, especially in times of constrained budgets. How can we leverage our very capable partners to put capability on orbit so we can go solve the hard problems others aren't looking at. We're also seeing a significant uptick in national dollars for countries starting to be applied to space – even if it's civil space, civil space can be dual-use for civil or military. So we're seeing those dollars starting to come into countries who are starting to build up an industrial base. And the more we see the industrial base built out, the more innovation and technology developments that we're going to see all over the world."

"Everyone is seeing the benefits of space, and there are a lot more less-expensive options to start doing things with space, and using the benefits that space provides," Zacharias said. "What we need from our international partners is to just start the conversation – what capabilities would they like to have? Come to the table with those ideas so we can have a conversation about exportability, whether we can do a foreign military sales case. Some of our partners may feel like they don't want to waste our time, but we understand that they may not know what they want, or only have a vague idea. But coming to the table and having those conversations is the only way we'll be able to arrive at something more concrete."

International partners who are interested in foreign military sales can start with the **Security Cooperation Office** or **Office of Defense Cooperation** within the U.S. Embassy within their countries, Zacharias said.

"Communication is the foundation of every opportunity," Yeung said. "The earlier we have dialogue, the earlier we understand each other's plans, the easier it'll be to acquire something together. We have several forums – having partner participation in those arenas strengthens relationships and those lines of communication so we can capitalize on the fruits of our collaboration in the future."

www.spaceforce.mil

Space Systems Command is the U.S. Space Force field command responsible for acquiring, developing, and delivering resilient capabilities to protect our nation's strategic advantage in, from, and to space. SSC manages a \$15.6 billion space acquisition budget for the Department of Defense and works in partnership with joint forces, industry, government agencies, academic and allied organizations to outpace emerging threats. Our actions today are making the world a better space for tomorrow

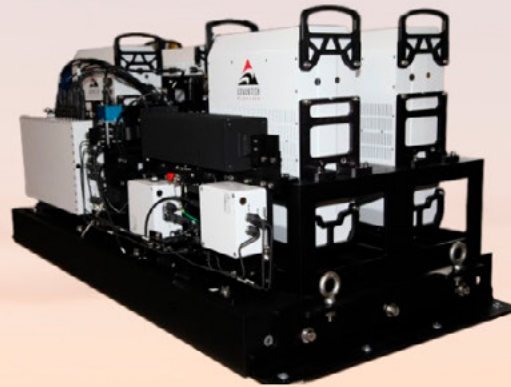
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— SPACE SYSTEMS COMMAND — BRIEFING #2 — GETTING “SPACE FORCE” FIT

Illustration by Nicole Elisseos

Author: Lisa Soddors, Space Systems Command Public Affairs

Military service members are expected to be fit — it’s all a part of making sure a fighting force is ready for duty — and the U.S. Space Force is no exception.

Guardians may spend more time tracking satellites and space debris and staying alert for hostile missiles than engaging in hand-to-hand combat, but that doesn’t mean they can slack off when it comes to physical training. However, as the newest military service, the USSF is taking a more holistic health approach to fitness standards.

“Regular exercise isn’t just about building physical strength; it’s about optimizing our potential,” said Chief Master Sergeant Jacqueline Sauv , Senior Enlisted Leader at Space Systems Command. “Research consistently affirms that exercise isn’t merely a routine; it’s a vital component fostering resilience, mental clarity, and holistic health. From safeguarding against cardiovascular risks to bolstering mental well-being, fitness is a mission imperative.”

When the Space Force was first established in December of 2019, without its own formal health and fitness program, it relied mostly on the Air Force’s standard **Physical Fitness Assessment (PFA)** test, which includes crunches/a plank, hand-release push-ups and a 1.5-mile run/shuttle run to gauge the fitness levels of Guardians.

Early in 2020, the USSF began development of a service-specific human performance capability for Guardians —the **Holistic Health Approach (HHA)**, that consists of continuous fitness, performance health optimization, and capacity-building. HHA is intended to increase short- and long-term health outcomes for the force by meeting Guardians “where they are” and showing them what “right” looks like.

It’s a more comprehensive and malleable approach to overall health and wellness, to include physical fitness and public health and prevention. For decades, the U.S. Department of Defense has pushed out one-size-fits-

all programs that do not take into account differences in individuals, said, **Christine Heit**, the Holistic Health Approach lead for the Space Force within USSF Headquarters.

Continuous Fitness is USSF’s developing approach to quantify and qualify important fitness metrics that are unequivocal markers of health, in an enduring, persistent, year-round manner. These metrics are **cardiorespiratory fitness (CRF)**, purposeful physical activity, and body composition.

Wearable fitness technology — such as fitness trackers — helps to make this possible and is now at a point that can allow it to be employed for just such a purpose, said **Carl Sheppard**, the Holistic Health and Senior Human Performance Advisor for USSF Headquarters.

“By being able to appraise fitness in an ongoing, continual manner, the goal is to leverage physical fitness requirements to actually improve, optimize, and maintain health; as opposed to wielding it as a hammer or being constrained by arbitrary test standards,” said Sheppard.

“Performance Health Optimization includes the USSF Body Composition Program and Lifestyle Medicine principles,” Heit added. “That allows us to not only have metrics rooted in science for health but also to teach our Guardians ways to make lifestyle changes to increase overall health. Our priority is for Guardians to be healthy - and we make concerted efforts to build skills with Guardians to help them be successful.”

To assess body composition, the USSF is using **waist-to-height ratio (WHtR)**. More well-known and often-used measures of body composition include BMI and body fat percentage models such as tape testing and skin-fold testing, Sheppard said. While useful in certain public health and athletic settings, these approaches fail to identify the most important aspect of body composition as it relates to health and injury: where is the fat?

“What we know from scientific literature is that excess abdominal fat - especially when it is stored deeper in the abdomen, next to our organs - is a much more significant indicator for the risk of acquiring obesity related, preventable disease - and injury - than body fat percentage alone,” Sheppard said. “This accumulation of abdominal fat is referred to as ‘central adiposity’ and WHtR is a very sensitive test to identify it.”

The public health message is very simple: “Keep your waist circumference to less than half your height,” said **John Hofman, MS, RCSCS (with distinction) TSAC-F (with distinction), certified strength and conditioning specialist at Los Angeles Air Force Base.** “Air Force physical assessments are once or twice annually depending on a person’s score. People were observed cramming for an assessment, working only in the weeks leading up to the test. The Space Force wanted to develop a science-based mechanism for fitness and health outcomes that promoted consistent physical activity rather than episodic preparation.”



John Hofman, certified strength and conditioning specialist, at the Fitness Center at the Los Angeles Air Force Base. Photo by Van D. Ha

He continued, “As a result, the Space Force partnered with the Air Force Research Laboratory (AFRL) to conduct a two-year study using portable wearable fitness devices, which started in June of 2023. Guardians can voluntarily opt-in to the study and be exempt from the Air Force physical fitness assessment as long as study criteria are met: 600 exercise minutes a month, monthly cardiorespiratory fitness readings, and engagement with the AFRL study team. There are also plans to connect increased physical fitness to improved cognitive performance and mission readiness.”

In addition, USSF also is implementing **Guardian Resilience Teams** at every USSF base, with a virtual team to help geographically separated units and remote Guardians. These teams will include a holistic health integrator, certified strength and conditioning specialist, licensed mental health provider and physical therapist.

The purpose of the Guardian Resilience Teams is to make sure USSF service members have the kind of support they need not just to be physically fit, but also mentally and emotionally ready to perform at the highest level, Hofman said.

“I like to tell people, ‘We’re just trying to manage stress - enormous stress, but stress,’ Hofman said. “How do you do that? Well, there’s no real magic pill - it’s eating right, it’s sleep, it’s exercise.”

It’s safe to say Hofman understands the toll stress can take - he spent more than 15 years as a tactical strength and conditioning specialist for both law enforcement and fire/rescue, and is an expert in tactical strength and conditioning. He has won numerous awards - including an **Emmy Award**

for **Branded Content** in 2021 for “**Did You Know: ‘Silent No More**” an officer suicide-prevention video, as a member of the **California Peace Officer Standards and Training** team. He also played college football and competed for 12 years on the U.S. canoe and kayak team, where he competed in two Olympic trials.

“Space Force wants to make sure our Guardians are getting positive reinforcement and positive feedback to make healthy choices for themselves,” Hofman said. “‘Fit for duty’ is always the most common question - what does that mean? Does it mean that because you can run a mile and a half in under 12 minutes and do lots of pushups that you’re fit for duty? I don’t think so.”

To Hofman, ‘fit for duty’ isn’t just one physical component, but a comprehensive set that takes the whole person into account. Biofeedback from portable wearable fitness devices and bloodwork can be helpful in tailoring workouts to exactly what an individual needs - but Guardians may need some help in interpreting the data, Hofman said.

“For example, if someone is always stressed out, long, slow running is a good way to reduce the cortisol (stress hormone),” Hofman said. “Maybe someone likes to do a lot of bootcamps and high-intensity training. This will spike the cortisol, so we can educate them on proper recovery tactics to help bring it down so they can sleep better.”

People are more likely to stick to a workout routine if they actually enjoy it, so Hofman said he often begins consultations by asking the Guardian what they like to do and going from there.

“Do you eat well? I don’t mean ‘eat perfect.’” Hofman added. “We don’t need to add more stress to eating. Eating shouldn’t be that complicated. We don’t look at diets - we look at habits.”

The Guardian Resilience Team also has a licensed mental health professional to help Guardians with their mental health, and a physical therapist to help them deal with pain - someone with chronic pain is not going to function at their peak mental and physical ability, Hofman said. Chronic sleep problems also take a physical toll on the body and mind and can interfere with a Guardian’s efforts to eat well and exercise.

“By using a more well-rounded, holistic approach, you’re creating a feedback loop,” Hofman said. “You provide the resources to educate and help to explain what this information is, to keep that loop going. You’re providing resources so they can take accountability for their wellbeing and you’re there to support them - versus ‘Here’s a check box, you’re done. We want Guardians to be aware of what they’re doing - and make those corrections and make healthy choices for themselves. We peel back the onion, and now we have a well-rounded individual who’s fit for duty.”

“Our Guardians need to be mentally and physically ready to meet the unique demands of Space,” said **Tim Stearns, DrPH, MPH, Los Angeles Air Force Base Guardian Resiliency Team Lead.** “When our Guardians are empowered, educated, and given the skills to be successful, they then become the most lethal version of themselves, and that’s exactly what the HHA does!”

“The innovative, data-driven, and evidence-based approach leads to the development and implementation of comprehensive and individualized fitness programs that optimize performance and reduce injuries,” Stearns continued. “Coach Hofman assesses each member, develops a personalized program rooted in science, and educates every member he works with. Guardians are encouraged to participate in fitness activities they enjoy with proper body mechanics, technique, and form resulting in stronger Guardians. A physically stronger Guardian is a more resilient Guardian; and a resilient Guardian is a Guardian ready to dominate the Space Domain and in life. Coach Hofman improves the quality of lives of Guardians by creating a positive relationship with physical fitness that will endure throughout their military career and beyond.”



USING GEOTECH TO UNVEIL THE SECRETS OF SHIPS AT SEA

GEOSPATIAL INTELLIGENCE

Author: Unseenlabs Editorial Team



It has never been more important to know what vessels are in the water, where they are, and for what purpose. Maritime Domain Awareness (MDA) is a critical need in military applications so resources can be utilized for potential or known threats, rather than searching for general maritime awareness.

Traditional MDA involving sonar, drones, and other legacy technology, such as the *Automatic Identification System* (AIS), is flawed. Individuals can tamper with or disable AIS transponders, and go dark at sea.

When a vessel is operating legitimately and within legal practices, the AIS is likely to be on and functioning. However, the oceans are vast and there are reasons vessels may not wish to be visible.

The estimate is that within the 360,700,000 km² of the ocean's total area, 90% of the world's trade is carried out. Plus, about 80% of the time, ships simply cannot be located. Approximately 90% of polluters cannot be localized, and 20% of fish served at dinner comes from illegal fishing.

These are all problems and they are not going away. Information is needed in near real time and **Unseenlabs** is the rapidly growing, *geospatial intelligence* (GEOINT) solution.

Ships go dark for many reasons. Sometimes the vessels and their operators are staying safe in a war zone; however, many times, they are up to no good. Hidden ships may be avoiding war regulations to transport oil or other supplies. They may be dumping waste and wrecking our oceans. Some dark ships are stealing containers full of goods and taxing economies. What is needed is an alternate tool set.

Unseenlabs uses geospatial technology and radio frequency for MDA and the firm's solution is used by militaries to see through weather and the darkness, and to use state-of-the-art technology to patrol waterways and prevent piracy, dumping, illegal fishing, and more. MDA is also used in the commercial space to protect high value cargo.

In general, GEOINT provides numerous tools for locating stealthy, hidden, dark, or invisible ships. This satellite and imagery analysis is now the best practice solution for locating vessels at sea.

While there are other methods, sensor integration, monitoring movement, and predictive analysis, these are limiting and inferior — they're best used in collaboration with Unseenlabs.

For militaries and organizations that are military supported, the success of a mission, and the maintenance of safe seas, is dependent on information that is infinitely harder to obtain when ships go dark and disable their transponders.

MDA is a critical concern for everyone, especially the military and law enforcement. As maritime traffic steadily grows, there is a corresponding rise in unusual and unlawful activities at sea. The many overseers of maritime activity often lack reliable data on sea traffic.

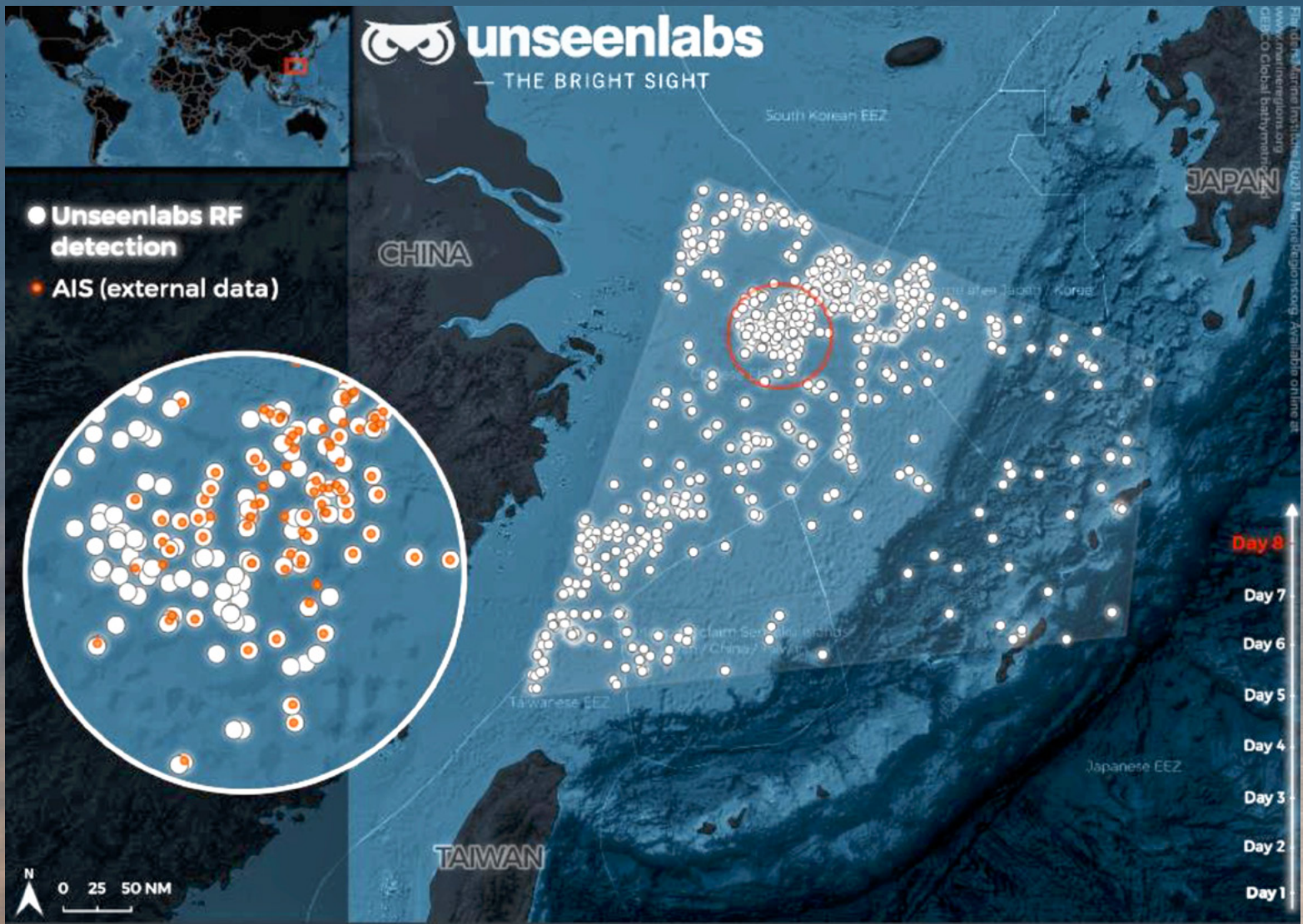
The primary vessel location tool in use today is AIS, a technology that was not originally designed to track ships and can be easily turned off or tampered with.

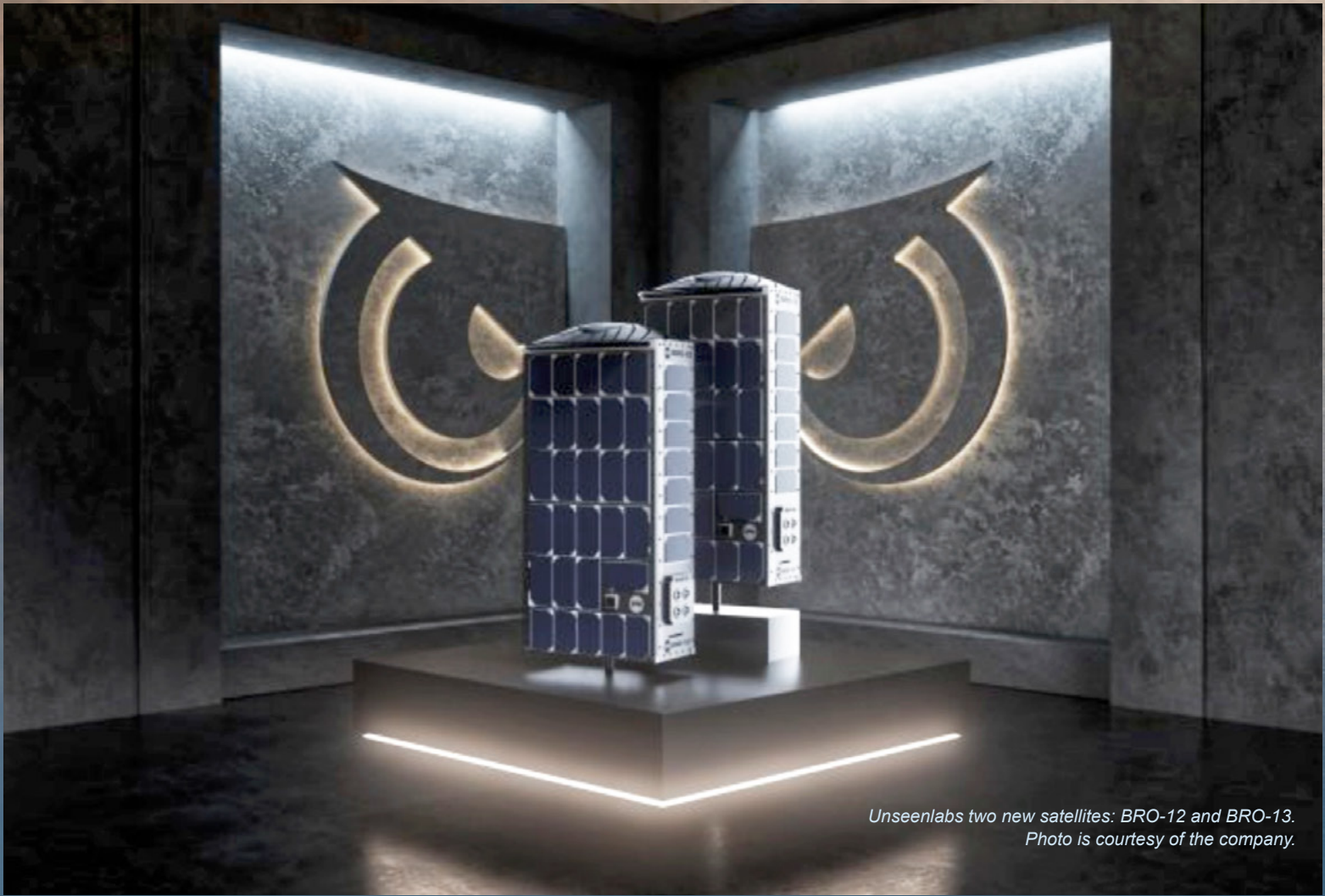
With Unseenlabs, the maritime sector can locate ships by detecting and characterizing their passive electromagnetic signature, the *radio frequency* (RF) fingerprint. RF technology using dedicated satellites is able to track any ship, anywhere, and at anytime — even when other systems are unable to do so.



GEOINT offers powerful tools, and yet when ships' AIS transponders and sensors fail to track, surveillance is stymied. Predictive analytics becomes less effective if crew members on ships deliberately interfere with their AIS systems.

Military agencies are working to resolve challenges locating ships. One of the many challenges that required resolution was light; ships are hidden in the dark when they are engaged in illegal activities.





Unseenlabs two new satellites: BRO-12 and BRO-13.
Photo is courtesy of the company.

Another challenge is a lack of interpretable data that would enable quicker processing and delivery of intelligence to the end-client more accurately and faster than previous technologies were able to deliver. Too much time was lost, and damage was done in the interim.

Last fall, as global military action evolved, there were many news articles, including one in *Newsweek*, that shined a light on hidden or dark ships that are actively evading detection. In *Newsweek*'s example, experts believe the evasion efforts were related to transporting military supplies in secret and using a path that was not sanctioned by maritime regulations.

There are myriad examples of ships seeking to hide in the military setting, including some engaged in either the transport of oil to other regions against embargoes, involved in spy activities, and more.

The ultimate cost of undetected and apprehended hidden ships who are engaged in illegal activity is great, including ocean pollution and pirates. A comprehensive understanding of the maritime domain is essential, and Unseenlabs is now filling the gap.

The company's space-based RF detection solution identifies the digital, passive, electromagnetic signature of any ship, anytime (*day or night*), anywhere on the globe, regardless of weather conditions. The ship does not need to cooperate or maintain any transponder system. The solution works during weather, such as heavy fog or rain, that might otherwise make visibility difficult.

Unseenlabs operates a unique, satellite-based technology to identify, recognize and track a broad range of radio emitters. The solution collects and processes proprietary data for maritime surveillance, including a characterization of an emitter's technical parameters.

Prior to Unseenlabs, there was a significant gap in visibility within oceans to identify ships that disabled transponders. Unseenlabs recently added two new satellites dedicated to their solution and now has a 13 satellite constellation on-orbit. The company's aim is to have a 25 satellite constellation on-orbit by 2025. With these additional satellites, more governments, insurers, shipowners, and *non-governmental organizations* (NGOs) now have access to RF surveillance to identify ships seeking to evade detection, ensure maritime security, and protect the marine environment.

After a \$90 million injection of investor funds, Unseenlabs is growing its capabilities and its RF data solutions for MDA in a near real-time response with trusted data.

The Earth Observation (EO) market, military and commercial, is paying close attention to the Unseenlabs solution. RF mono satellite technology allows efficient data collection and produces a new type of data that supplements and synergizes with current technologies, including AIS, SAR, and Optical, bringing vessel monitoring and tracking to a whole new level of accuracy. It is easily integrated as an API.

Unseenlabs is providing reliable, core intelligence competency to a variety of industries, including defense, intelligence, environmental, insurance, and other governmental agencies. They are the effective eyes in the sky protecting our oceans.





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A large satellite with two long, rectangular solar panel arrays is shown in orbit above the Earth. The Earth's surface is visible, showing continents and city lights at night. The sun is shining brightly from the right, creating a lens flare effect. Two white lines cross the image diagonally.

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EMERGING CYBERSECURITY THREATS

DISA'S INTELLIGENCE DIRECTOR SPEAKS OUT

Authors. Office of Strategic Communication and Public Affairs

Earlier this year, Army Colonel Richard Leach, Defense Information Systems Agency Director of Intelligence, spoke at the Digital Protection Summit in Washington, D.C.



His fireside chat, titled, "The convergence of cyber and identity security," focused on the evolving cybersecurity threats the Department of Defense is facing. He emphasized the intersection of personal and organizational security as well as the threats and opportunities of Artificial Intelligence (AI).

THE CHALLENGES OF EMERGING TECHNOLOGY

Leach opened by emphasizing how COVID and remote work changed the cybersecurity landscape. With employees suddenly working from home and using virtual private networks, these rapid changes, "became ripe objects for the adversary to look at."

As people's homes became their offices as well, Leach noted that a real danger came when people took the same approach to cybersecurity for both venues. Most importantly, far too many people used the same passwords for home and work. Then, when data leaks occur, something as seemingly trivial as an employee's streaming password being compromised could be the key hackers need to access an enterprise network.

Of course, remote work isn't the only important development in recent years for cybersecurity. The rise of AI has been immensely impactful by decreasing the amount of technical expertise needed to carry out cyberattacks. For instance, the data leaks mentioned above were a problem before AI, but with AI hackers can comb through leaks for information on particular, high-value individuals faster than ever. In Leach's words, "finding the needle in the haystack has become so much easier."

Another example Leach offered was hackers using AI to find code that will break into internet connected consumer devices in homes, such as cameras, refrigerators and more. "The AI is really starting to be able to write that code for you. So I don't have to be a super smooth state-sponsored hacker. I can be a script kitty sitting at home, typing that into ChatGPT and getting that back," said Leach. According to Leach, hackers will then harvest as much personal data as they able to gather. As personal security is tied up with enterprise security, this data has become even more valuable.

As Leach said, hackers "get a two-for-one deal. One, they can go after us for our connections and what we do within the government or corporations – because corporations have people that are just as much targeted as DOD folks. Then on the personal side, those criminals will come back and say, 'okay, what can I get off this individual? Either I can use his persona to go out and link with other people's personas or I can just use it, go shopping or get credit cards."

THE SOLUTION

Put together, the outlook for cybersecurity can seem bleak. Nevertheless, Leach insisted emerging technologies also offer opportunities for greater defense. For instance, while AI will result in more attacks, Leach emphasized it will also empower analysts to work faster. He said, "There's no way I can hire enough analysts to sort through all of that, so we're going to have to use those APIs and those large hybrid models to sort through the data."

He continued by pointing to [Thunderdome](#), DISA's Zero Trust solution, as an example of combining different emerging technologies to increase security. In addition to adopting new technologies, DISA is adapting its approach to cybersecurity.

Leach said DISA is moving away from old models of cybersecurity built upon a castle and moat approach. Instead, DISA is prioritizing Zero Trust. Meanwhile, Leach is charging his team with two things: "know your network and think like a hacker."

Finally, Leach emphasized that cybersecurity is a team sport. It's on everyone to take cybersecurity seriously, which is why cyber education is so important. He said, "We're constantly trying to educate the workforce on what are the proper cyber hygiene things they should be doing."

To learn more about how good cyber hygiene can be practiced, [access this direct infolink for the](#)



As the Department of Defense's cutting-edge Zero Trust network access and application security architecture, Thunderdome is transforming the way we approach cybersecurity and network infrastructure. Comprised of a comprehensive suite of IT and cyber-based technologies, Thunderdome leverages enterprise Identity Credentials and Access Management (ICAM), commercial Secure Access Service Edge (SASE), and software-defined networking and security tools to provide unparalleled protection and reliability. This is a substantial shift for the DOD and delivers next-generation solutions for a safer and more secure digital landscape.

Unlocking the Power of Thunderdome

At the heart of Thunderdome's revolutionary approach lies a robust arsenal of network fortification tools and cutting-edge segmentation technologies, setting the stage for an unparalleled level of defense against adversarial threats. How does Thunderdome achieve this remarkable feat? By redefining the very foundation of network security through a dynamic interplay of essential principles:

- Zero Trust Security Reinvented
- Elevated Security, Amplified Performance
- Identity-Centric Access
- Championing DOD's Mandate

Fundamentally, Thunderdome transcends the boundaries of conventional security paradigms, ushering in a new era of defense, optimized performance and simplified administration. Join us as we delve deeper into Thunderdome's intricate workings, and embark on a journey towards a safer, smarter and more secure digital frontier.

Why Thunderdome Matters

In a rapidly evolving digital landscape, Thunderdome emerges as an indispensable ally, offering a suite of capabilities that transcend traditional boundaries. What sets Thunderdome apart and makes it a must-have for the modern age? Here are a few of the compelling reasons that make Thunderdome an essential addition...

- Seamless Identity and Endpoint Synergy
- Simplified Access, Unleashed Cloud Potential
- Pioneering Zero Trust Compliance
- Allegiance to Higher Federal Mandates
- Elevating User Experience and Efficiency
- Choice and Flexibility for Mission Partners
- Revolutionizing Interoperability and Command

Thunderdome is the gateway to a future fortified against adversarial threats, powered by cutting-edge technology and aligned with the highest standards of federal mandates. Thunderdome is shaping a digital realm where security, performance and innovation converge to create a safer and more resilient future.

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DISA INTEGRATES AI TACTICS TO BOLSTER DEFENSE CYBERSECURITY

DISA CHIEF TECHNOLOGY OFFICER STEVE WALLACE SHEDS LIGHT ON THE AGENCY'S INITIATIVES

Author: Marco Antonio Villasana Jr. / Office of Strategic Communication and Public Affairs

In a bid to fortify the [United States Department of Defense's](#) cybersecurity infrastructure, the [Defense Information Systems Agency](#) is harnessing the power of artificial intelligence (AI) through strategic integration.

DISA Chief Technology Officer [Steve Wallace](#) shed light on the agency's initiatives during a recent interview.

"We are actively collaborating with industry and within the department to seamlessly integrate AI into our defensive posture. This involves ensuring the department's evolving needs are met by leveraging AI capabilities."



Steve Wallace

Wallace applauded the longstanding relationship between DISA and industry, noting the ongoing integration of AI capabilities into various offerings.

"Industry has been incorporating AI in different forms for many years, and now, with the emergence of large language models, we're witnessing even more integration points and opportunities."

In addition to industry collaboration, DISA is partnering with organizations like the [Defense Advanced Research Projects Agency \(DARPA\)](#) to test trained models on cyber data for detecting anomalous behavior. This proactive approach underscores DISA's commitment to staying ahead of emerging cybersecurity threats.

When asked about the adversarial use of AI, Wallace highlighted the refinement of tactics such as phishing emails and social engineering, stressing the importance of vigilance among all stakeholders.

"Adversaries are leveraging AI techniques to craft more convincing phishing emails and manipulate AI systems to achieve nefarious outcomes."

Regarding AI tools currently employed by IT service members, Wallace pointed to the widespread adoption of AI capabilities by [security information and event management] vendors. These tools enhance efficiency and enable defenders to adapt to the adversary's growing sophistication.

DISA's collaboration with industry extends to the development of cyber defense tools incorporating generative AI.

"We provide feedback on existing capabilities and work with industry to enhance their offerings. This partnership allows us to leverage cyber-specific models that significantly enhance the effectiveness of our defenders."

Looking toward the future, Wallace highlighted the inevitability of AI integration in cybersecurity while emphasizing the criticality of security around AI models and data integrity.

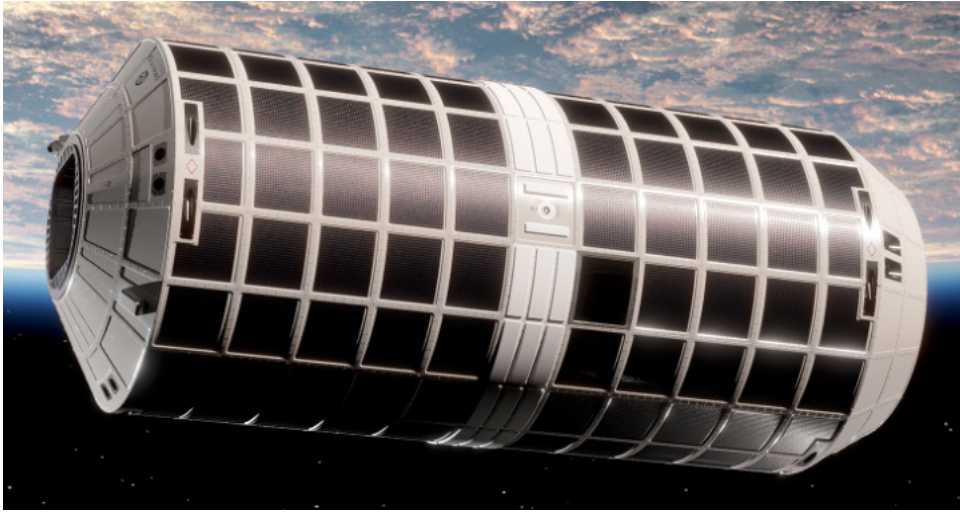
"As tactics evolve, AI models must remain relevant and refreshed with current datasets to ensure sustained effectiveness."

Wallace also hinted at future opportunities for AI to enhance Zero Trust and DISA's security and network architecture, **Thunderdome** (see [previous page for info...](#)).

"Our [endpoint detection and response] solution already uses AI for attack analysis and response. Additionally, we're exploring AI integration for log analytics and a potential risk scoring system."

As DISA continues to navigate the ever changing cybersecurity landscape, its strategic integration of AI promises to bolster defense capabilities against emerging threats, safeguarding national security interests.

DISPATCHES



Gravitics' commercial space station modules can support a wide range of military and civilian applications, including in-space rapid response applications.

Gravitics is supported by several partners under this contract, including Rocket Lab USA, True Anomaly, Space Exploration Engineering, and Eta Space. These partners will assist in refining mission architecture, developing use-case specific outfitting, and developing flight hardware.

"We are looking at all options to meet the mission on tactically relevant timelines. The Gravitics space station module offers an unconventional and potentially game-changing solution for TacRS," said Lt. Col. Jason Altenhofen, Space Safari's Director of Operations. "As we look into the future, the innovative use of commercial technologies will be an important aspect to solving some of our toughest challenges."

"Developing and manufacturing commercial space station modules will continue to be at the core of our company mission," said Colin Dughan, CEO of Gravitics. "Gravitics is thrilled to have the opportunity to offer these commercial capabilities to the Department of Defense (DoD)."

GRAVITICS AWARDED USSF CONTRACT FOR TACRS SPACE DEVELOPMENT

Gravitics, Inc. has been awarded a \$1.7 million Small Business Innovation Research (SBIR) Direct-to-Phase II contract from **SpaceWERX**. In partnership with Space Systems Command's Space Safari Program Office.

Under this contract, Gravitics will leverage its commercial space station product architecture to develop orbital platforms that will enable rapid and flexible response options for the United States Space Force (USSF).

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Image: Active Electronically Scanned Array (AESA) Terminal



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DISPATCHES



Series 11000 Tactical Hub

iDirect Government (iDirectGov) has engaged in a partnership with Tampa Microwave that combines iDirect Government's Tactical Hub and Tampa Microwave's Quad Band Satellite Simulator (QBSS) to deliver an easy to use, transportable and cost-effective solution to support all-encompassing mission-readiness scenarios, branded TerraNet.

A turnkey solution, TerraNet can be used to perform end-to-end system validation, radio frequency (RF) equipment testing, training, maintenance and pre-deployment exercises of hub and remote terminals in a simulated satellite network of as many as 1,000 remotes within a range of 300 feet.

TerraNet enables MILSATCOM users to deploy a cost-effective training and testing platform with benefits that include:

- *Simulated satellite link for mission readiness activities, saving bandwidth costs from using a live network.*
- *Reduced training lead times due to other satellite bandwidth and priorities, allowing training to take place when it is needed.*
- *Eliminating cancellations of planned training testing because of higher priority uses.*
- *Effectively conduct training and testing on multiple interference scenarios without compromising live networks.*
- *Evaluate emerging technologies and field new capabilities without necessitating live mission networks.*
- *Complete network system eliminates reliance upon gateway personnel and resources: Personnel can "train as they fight" in a realistic end-to-end environment.*

*"Intricate engineering, advanced technology, testing, launch expenses, ongoing maintenance, ground control operations and other factors contribute to the high costs of satellite communications," said **Tim Winter**, president of iDirect Government.*

"Although the bandwidth costs are well worth it to protect citizens and U.S. infrastructure, assets and interests, there is now a way to prepare for mission readiness and save on bandwidth costs with TerraNet. This solution represents another way that iDirect Government is at the forefront of innovation, with Tampa Microwave as our partner."

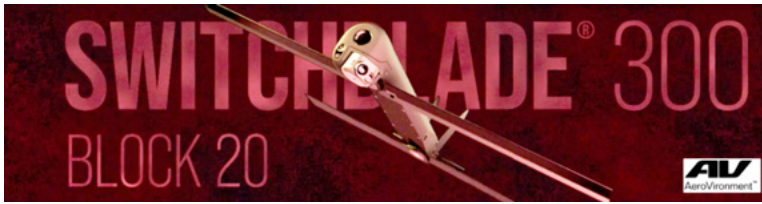
About iDirect Government

iDirect Government, LLC, delivers secure satellite-based voice, video and data applications with anytime and anywhere connectivity in the air, at sea and on land. iDirect Government's advanced satellite IP solutions are used for critical ISR, airborne, maritime and COTM communications to support force protection, logistics, situational awareness, disaster recovery and emergency response. From its beginnings in 2007, iDirect Government has supported the Department of Defense and other agencies, solving communications challenges with effective and exceptional delivery, in some of the most extreme environments worldwide.



Simulators

DISPATCHES



AeroVironment's (AV) Switchblade 600 loitering munition system has been selected for Tranche 1 of the first iteration of the U.S. Department of Defense's (DoD) Replicator initiative.

AV's Switchblade 600 is a man-portable, extended-range, loitering munition system equipped with an anti-armor warhead for engaging larger, hardened targets at greater distances.

The first iteration of the Replicator initiative aims to accelerate all-domain, attributable autonomous systems to warfighters at speed and scale.

The first iteration of the Replicator initiative will field thousands of autonomous systems across multiple domains within the next 18 to 24 months, as part of the Pentagon's strategy to counter peer adversaries' rapid military buildup.

The initiative will prioritize the fielding of attributable capabilities — affordable uncrewed platforms that allow commanders to tolerate a higher degree of risk in employing these “force multiplying” systems.

Equipped with advanced sensors and precision flight control, Switchblade 600 is capable of quick and easy deployment via tube launch and can fly, track and engage non-line of sight targets.

Switchblade 600's patented wave-off and recommit capability allows operators to abort the mission and re-engage as the mission requires.

“Switchblade 600 is a battle-proven system in full-rate production that can support the DoD's desire to field thousands of autonomous systems across multiple warfighting domains,” said AV's SVP of Loitering Munition Systems, Brett Hush.



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DISPATCHES



Guardians, members of our armed services. It's soldiers and sailors. It's Marines. You're going to see the whole defense – the joint community – here this weekend talking about this."

But, while it's critical to innovate, Leigh added that the United States also needs to field technologies first, before its adversaries do, to have the greatest impact.

"We need to quickly move those and get them into the hands of somebody who can do something with them," Leigh said. "That gives (warfighters) an advantage – what I like to think of as an unfair advantage – over their adversaries in a wartime environment."

Leigh reiterated that American ingenuity is the country's "superpower," giving it an edge that helps it win wars.

"We know – and you know this – our adversaries want to tap into that superpower of American ingenuity," Leigh said. "It's why they're attending our universities. It's why they're trying to buy into your companies. It's why they're interested in your intellectual property. It is our superpower."

Leigh provided examples of America's adversaries influencing its neighbors and projecting military and economic power. Additionally, he provided success stories for each of AFWERX's four divisions – AFventures, Prime, SpaceWERX and Spark.

Leigh also joined leaders from the Defense Innovation Unit and NavalX to mark the launch of the Joint Defense Innovation Space in Austin with a ribbon-cutting ceremony. The joint workspace is located at Capital Factory, the home of AFWERX's Austin Hub, in the Omni Hotel.

"This new space is a testament to the strong collaboration happening across the DOD's innovation organizations," Leigh said during the ceremony.

The co-location of these organizations is an effort to better scale the adoption of commercial technology across the Department of Defense, leading to greater strategic impact. Additionally, these coordinated efforts are part of the DoD's focus on improving the demand signals to the commercial tech sector, making it easier for tech companies – particularly startups and small firms – to engage with the department.

About AFWERX

As the innovation arm of the DAF and a directorate within the Air Force Research Laboratory, AFWERX brings cutting-edge American ingenuity from small businesses and start-ups to address the most pressing challenges of the DAF. AFWERX employs approximately 370 military, civilian and contractor personnel at five hubs and sites executing an annual \$1.4 billion budget. Since 2019, AFWERX has executed 6,028 new contracts worth more than \$4 billion to strengthen the U.S. defense industrial base and drive faster technology transition to operational capability.

About AFRL

The Air Force Research Laboratory is the primary scientific research and development center for the Department of the Air Force. AFRL plays an integral role in leading the discovery, development, and integration of affordable warfighting technologies for our air, space and cyberspace force. With a workforce of more than 12,500 across nine technology areas and 40 other operations across the globe, AFRL provides a diverse portfolio of science and technology ranging from fundamental to advanced research and technology development.

THE ROLE OF TECH STARTUPS, QUICK INNOVATION IN THE GREAT POWER COMPETITION

AFWERX, the Department of the Air Force's innovation arm, met with technologists, startups and venture capitalists at South by Southwest in Austin, Texas, earlier this year to discuss national and global security challenges and the role AFWERX plays in acquiring the cutting-edge technologies needed to meet them.

The three-day event featured panels and fireside chats focused on providing practical advice to small companies about topics such as artificial intelligence, autonomy, cyber security, venture capital, foreign ownership issues and navigating the defense innovation ecosystem. The event comes as the Department of the Air Force undertakes one of its most significant recalibrations in recent history, positioning the Air Force and Space Force to maintain supremacy in an era of Global Power Competition.

During his March 8 keynote speech, "*Chasing Innovation: Lessons Learned*," AFWERX Director and DAF Chief Commercialization Officer **Col. Elliott Leigh** said the department's transition to an enterprise focused on Great Power Competition will require a pipeline of cutting-edge technologies from startups and military personnel to AFWERX.



"We work contracts," Leigh said. "We run the front end of the pipeline. We do prototypes, and we transition those technologies, but there are other elements of this. It's really people that win the wars. It's Airmen and

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DISPATCHES



GLOBAL SPACE DEFENSE + SECURITY INVESTMENT — MAJOR GROWTH TREND OVER THE COMING DECADE

Novaspace, formerly Euroconsult, is forecasting that the worldwide launch rate for defense and dual-use satellites will increase by 160% over the coming decade.

NovaSpace estimates that worldwide government expenditures in space defense and security reached more than \$58 billion, a historic high. Government expenditures are driven by an increasingly fragmented geopolitical context, the growing rivalry between the U.S., China and Russia, as well as the growing integration of space-based services in conventional military forces on land, air and sea.

The new data is part of NovaSpace Space Defense and Security report (1st edition), an in-depth analysis of current and emerging space defense trends, dynamics and demand drivers, which offers vital insights into the space defense and security landscape, and showcases the significant contributions of leading nations.

Four countries emerged as front runners in 2023, each with investments exceeding \$1 billion. The United States led with \$38.9 billion, followed by China with \$8.8 billion, Russia with \$2.6 billion, and France at \$1.3 billion. Japan, the United Kingdom, the European Union and Germany also made substantial investments, each surpassing \$500 million.

Of the \$58 billion allocated in total by governments, an estimated \$40 billion was contracted to industry for the provision of crucial space defense and security capabilities.

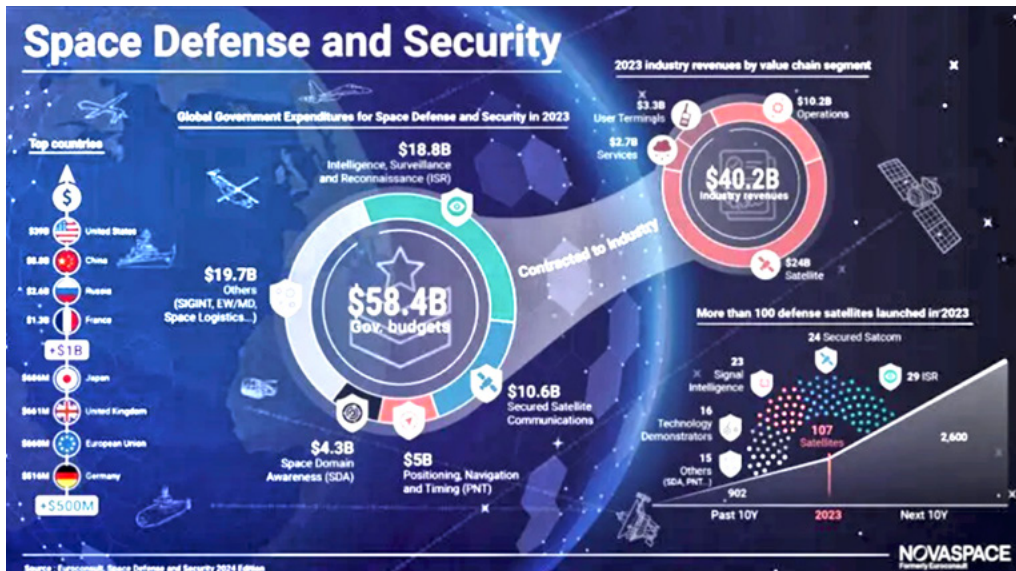
These include the manufacturing and launch of government satellites, the provision of user terminals, commercial operation of government systems, and delivery of commercial space defense and security products, data, and services to defense organizations.

A majority of funding is for the manufacture of government systems as countries seek to maintain control over proprietary systems for sovereignty reasons, while the acquisition of commercial data to augment or complement government-owned systems is identified as a growing trend, particularly in the United States. Procurement of services remains more limited as most defense organizations carry out data analytics in-house, though this is also showing early signs of change.

The report highlights industry revenues across four value chain segments totaling \$40.2 billion. These include the manufacture and launch of defense and dual-use satellites (\$24 billion), provision of user terminals (\$3.3 billion), operation of government systems and sale of data (\$10.2 billion), and provision of managed and value-added services (\$2.7 billion).

In 2023, some 107 defense and dual-use satellites were launched by 17 governments, a 40% increase from the previous year. The U.S. logged 44 launches, followed by China (30) and Russia (11). Other countries combined launched a total of 22 defense and dual-use satellites. The top capability domains were Intelligence, Surveillance and Reconnaissance, (29), Secured Satellite Communications (24), Signal Intelligence (23), and Technology Demonstrators (16).

More than 2,600 launches are projected by NovaSpace, an increase primarily driven by the need for system architectures to enhance the resilience of space-based services and, to a lesser extent, by the growing number of countries investing in space defense and security.



“An increasingly fragmented global geopolitical context is a major driver of space defense and security expenditures,” said Principal Advisor Simon Seminari, editor of the report. “This is marked by high-intensity conflicts in Ukraine and the Middle East as well as contained tensions in the South China Sea, the Pacific, the Indian subcontinent, and Africa. “As space becomes more contested, congested and competitive, countries worldwide are bolstering their defense readiness. Space is integral to modern warfare, with militaries relying on space-based capabilities for battlefield awareness, navigation in low visibility conditions, and secured connectivity in hostile environments.”

DISPATCHES



REDWIRE SELECTED BY ROCKET LAB TO PROVIDE ANTENNAS FOR THE SDA'S TLT2 SATELLITE CONSTELLATION

Redwire Corporation (NYSE: RDW) has been contracted by Rocket Lab USA, Inc (NASDAQ: RKLB) to provide antennas and RF hardware for the recently announced Space Development Agency (SDA) Transport Layer Tranche 2 Beta variant satellites.

Tranche 2 is the second operational generation of spacecraft that will make up the *Proliferated Warfighter Space Architecture (PWSA)*, a constellation of satellites that will provide warfighters operating on land, in the air, and at sea with secure, anti-jam beyond line-of-sight communications.

Redwire will produce 18 ship sets of antennas and RF front ends for Tranche 2 in its newly expanded Colorado facility. The new, state-of-the-art facility has 26,000 square feet of high-bay manufacturing, integration, and testing floor space and an advanced testing chamber for testing RF payload performance. These capabilities will be crucial for the design, manufacture, and testing of the Tranche 2 hardware.

SDA's PWSA Transport Layer will consist of a constellation of 300 to more than 500 LEO satellites flying at altitudes ranging from 750 to 1200 km. When the full constellation is operational, American warfighters will have constant, world-wide advanced communications available to them. The first of the Beta variant Tranche 2 satellites is slated to be ready to launch in September 2026.

This award is the latest of a series of contracts related to SDA's Transport Layer going back to Redwire's delivery of its first Link 16 antennas for Tranche 0 in 2020. The company was also selected to provide RF hardware and antennas for Tranche 1 satellites. Redwire has delivered 48 Link-16 antennas to date for Tranche-1.

"Redwire is proud to partner with Rocket Lab in the development of the SDA's Tranche 2 Transport layer," said Redwire Space Systems President Adam Biskner. "As an antenna supplier for the SDA Transport Layer program since Tranche 0, Redwire is continuing to make significant investments in manufacturing capacity and assembly, integration, and test capacity to support multiple parallel antenna and RF production lines."

"We look forward to working with Redwire and leveraging their unparalleled expertise in RF antenna development for transport layer programs," said Rocket Lab Vice President of Space Systems Brad Clevenger. "As we embark on a new era as a leading satellite prime, we have methodically executed on our strategy of developing and acquiring experienced teams, advanced technology, manufacturing facilities, and a robust spacecraft supply chain to make this possible."

About Redwire

Redwire Corporation (NYSE:RDW) is a global space infrastructure and innovation company enabling civil, commercial, and national security programs. Redwire's proven and reliable capabilities include avionics, sensors, power solutions, critical structures, mechanisms, radio frequency systems, platforms, missions, and microgravity payloads. Redwire combines decades of flight heritage and proven experience with an agile and innovative culture. Redwire's approximately 700 employees working from 14 facilities located throughout the United States and Europe are committed to building a bold future in space for humanity, pushing the envelope of discovery and science while creating a better world on Earth.

DISPATCHES



COMTECH PARTNERS WITH ARIZONA TO COMPLETE NEXT GENERATION 911 SERVICES TRANSITION

Comtech (NASDAQ: CMTL) has successfully completed a statewide transition to Comtech's **Next Generation 911** ("NG911") services.



Arizona's new statewide NG911 infrastructure is designed to significantly enhance the ability of first responders and *public safety answering points* (PSAPs) to respond faster to emergencies and provide more comprehensive and reliable 911 services to Arizona residents.



In less than two years, Comtech and the ADOA successfully migrated the state's legacy 911 system to the new infrastructure.

The Arizona NG911 program modernizes the state's emergency response capabilities and enhances the efficiency, effectiveness and reliability of 911 services, while enabling new capabilities such as geospatial location routing and improved redundancy, as well as the implementation of a new **Emergency Service IP Network** (ESiNET).

The Arizona NG911 statewide transition involved upgrading and integrating a wide range of 911 technologies, including call handling, dispatch, mapping and database systems. It also required implementing new protocols and standards to ensure interoperability and compatibility with other systems and networks.

Comtech has initiated trial services to deliver LEO satellite connectivity services to multiple regions of Antarctica.

Launched in January of 2024, the service provides connectivity to customers in Antarctica. Through this trial, Comtech's market-leading **ELEVATE VSAT** ground system supported **Eutelsat OneWeb**'s ability to deliver groundbreaking LEO connectivity services, with data rates reaching up to 120 Mbps, to one of the most challenging geographic regions in the world. Comtech worked with Eutelsat OneWeb to configure and install the company's ELEVATE ground system to simultaneously route connectivity services over multiple OneWeb LEO satellites.



This trial showcased the importance of high-speed, low latency connectivity for the scientific community and wider Antarctic region. Through satellite-based LEO connectivity services, like those provided by Comtech and Eutelsat OneWeb, scientists in Antarctica can better conduct day-to-day activities by facilitating real-time support from scientific, technical or health teams around the world. LEO connectivity services also have the potential to improve the welfare of the scientists, outside of working hours, as they are often deployed for 18 months at a time in one of the most remote and geographically challenging areas of the world.

Comtech's ELEVATE ground system is a transportable, software defined VSAT system, which is proven to provide commercial and government customers with access to high-speed connectivity across diverse satellite constellations in multiple orbits. ELEVATE is designed to identify, collect and route data from multiple satellite constellations and orbits as well as deliver next generation capabilities like 4K video streaming and voice services.

Additionally, earlier this year, Comtech appointed **John Ratigan**, Chief Corporate Development Officer ("CCDO"), as the company's interim Chief Executive Officer.

Mr. Ratigan, a former Chief Executive Officer, is an accomplished executive who brings over three decades of experience and senior leadership expertise across the global satellite technology sector. He has an extensive background in satellite communications, as well as a deep familiarity with Comtech, having spent ten years at EF Data Corp. prior to its acquisition by Comtech in July 2000, driving significant revenue growth over the course of his tenure.



As CCDO at Comtech, Mr. Ratigan has proven himself an instrumental member of the executive team, identifying and optimizing market shifts currently underway and executing on the Company's One Comtech strategy.

"As a leading global provider of next-generation 911 systems, secure wireless technologies and satellite communications, Comtech is at the forefront of innovative trusted connectivity solutions," said Mr. Ratigan. "I look forward to working closely with the leadership team and the Board as we continue successfully executing on One Comtech, building on the Company's recent momentum and creating value for shareholders, customers, partners, employees and other stakeholders."

DISPATCHES



KYMETA FULFILLING CUSTOMER ORDERS FOR MULTI-ORBIT, COTM FPA FOR MILITARY USERS

Kymeta's Osprey u8 HGL, a hybrid geostationary/low Earth orbit (GEO/LEO/LTE) terminal purpose-built for military users, is now shipping – this marks the first, commercially available, multi-orbit terminal and the first multi-orbit terminal for Eutelsat OneWeb's LEO network.



Kymeta announced the official launch in October of last year and is now fulfilling order backlogs.

In February, the Kymeta team demonstrated in the field the capabilities of the new Osprey u8 HGL delivering resilient, auto-PACE ready communications for the armed forces to meet the demands of challenging and rugged military environments.

The multi-orbit, multi-network capabilities of the Osprey u8 HGL terminal will offer even greater availability, while being durable, low power consuming, having low visibility, and easy to use.

The Osprey u8 HGL includes a field swappable modem cartridge and a OneWeb modem to enable connectivity with the Eutelsat OneWeb LEO network.

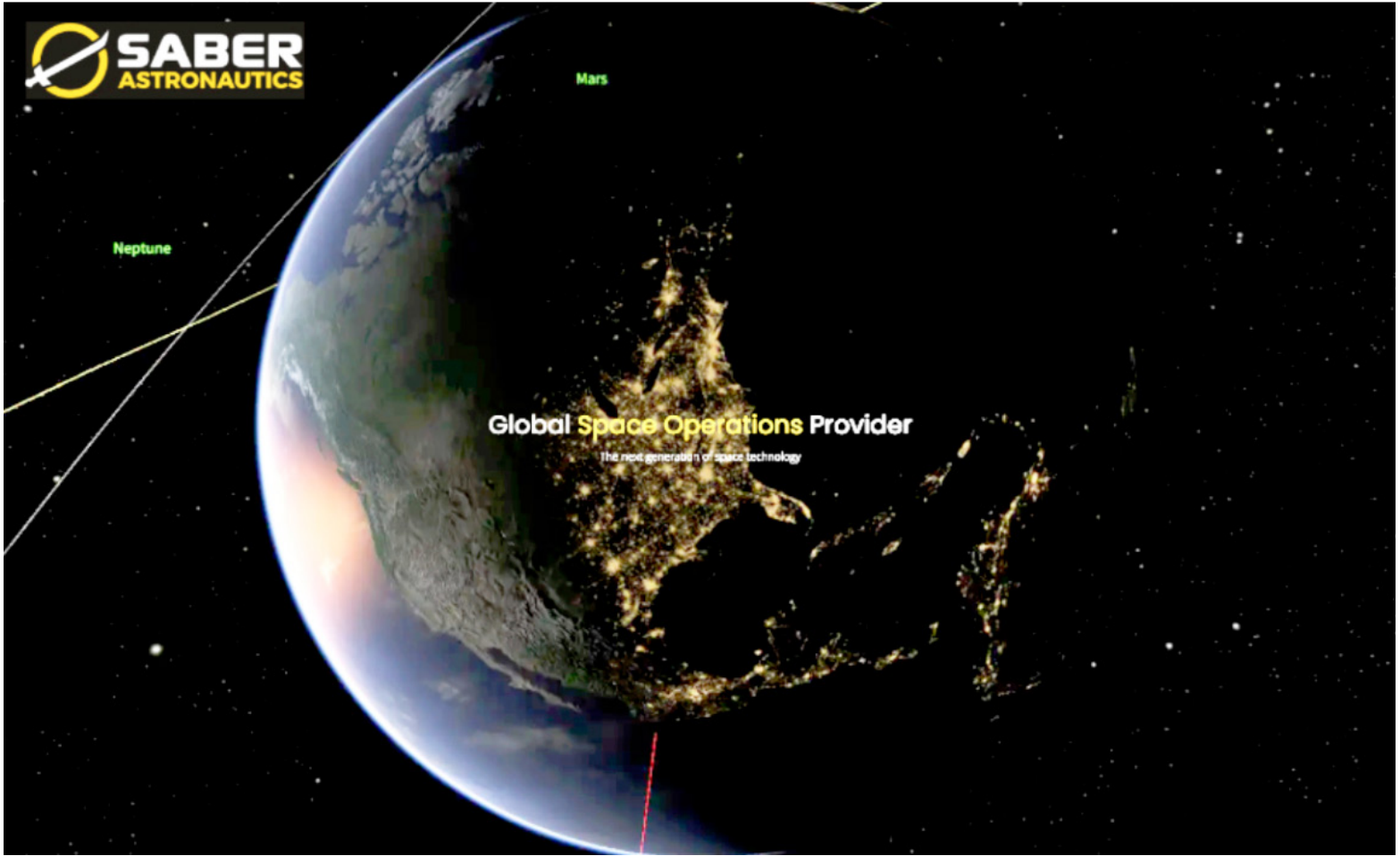
At launch, an [iDirect 950mp](#) cartridge is available enabling TRANSEC services over GEO. Other cartridge configurations will be available soon enabling end users to customize their terminal configuration based on their mission needs.



"The Kymeta Osprey HGL has a unique capability to address government requirements in support of government PACE plans," said Ian Canning, Chief Operating Officer, OneWeb Technologies. "The Osprey supports multi-network/orbit requirements through the concurrent LTE/satellite configuration with the added benefit of now being able to add OneWeb LEO capabilities."

Jon Osler, Senior Vice President Global Sales and Services of Kymeta, said, "In the contemporary military landscape, mobile connectivity has become indispensable for achieving success. Unlike any other sector, the military relies heavily on dependable, adaptable, and resilient on-the-go communication systems to fulfill its operational and training needs. We take pride in our longstanding partnership with the military, delivering cutting-edge solutions that meet and exceed expectations."

DISPATCHES



SABER ASTRONAUTICS' NOW HOSTS ARLULA'S EO APPLICATION ON THE SPACE APPLICATION MARKETPLACE

Saber Astronautics has integrated *Arlula's Earth Observation (EO) Data Application* into *Saber's Space Application Marketplace (SAM)*, a significant milestone marking the first time third-party EO data is available on the *Space Cockpit* platform. *Arlula's EO application* now hosted on *Saber Astronautics' Space Application Marketplace*

Originating from Australia, *Arlula* allows users from around the globe to effortlessly obtain, manage, and analyze satellite imagery on a grand scale.

This collaboration highlights the vital synergy between U.S. and non-U.S. partners, aimed at enhancing the offerings to the [United States Space Force \(USSF\)](#) and its allies. It demonstrates the global cooperation essential for advancing the space sector.

The *Space Application Marketplace (SAM)* is funded by the USSF and built upon the robust foundation of the *Space Cockpit* battle management software that is deployed and in use by thousands of operators in the USSF and allied

systems. *Space Cockpit* received its *Continuous Authority to Operate (CATO)* in 2019, allowing broad distribution across the *Department of Defense (DoD)*.

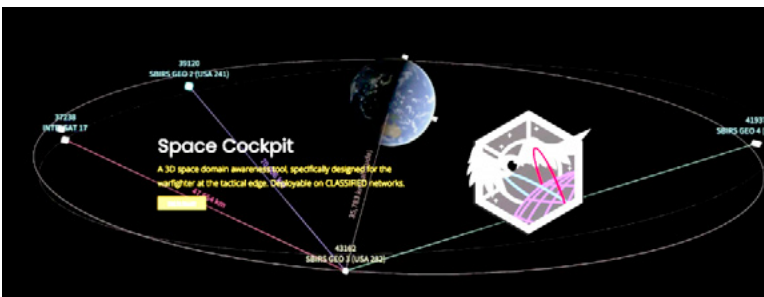
Building on *Space Cockpit* allows SAM members to greatly reduce the deployment waiting period from years to only a few months, overcoming many of the challenges deploying to the U.S. DoD.

Arlula's EO Data Application represents the first, third-party satellite imagery solution within SAM and also sets a new standard for satellite imagery solutions. With an expansive archive at its core and direct imagery tasking on the horizon, the application aims to dramatically improve situational awareness for space operators.

*"Embedding *Arlula's Earth Observation* app directly into *Space Cockpit* represents a fundamental leap forward in operational agility," said **Dr. Jason Held, CEO of Saber Astronautics.** "It merges real-time, actionable satellite imagery within live space operations, so operators watching space traffic can also monitor actions on the ground."*

Sebastian Chaoui, *Arlula's* CEO, said, "By combining *Arlula's* advanced earth observation infrastructure within *Saber Astronautics' Space Cockpit*, users are able to effortlessly acquire and manage satellite imagery on an unprecedented scale. This will help to redefine how we secure land, air and space domains." This integration highlights *Saber's* dedication to advancing space technology, offering a holistic solution that not only bridges the gap known as the "Valley of Death" in software companies looking to reach the U.S. DoD but also facilitates swift deployment for operators eager to experiment with new applications."

For more information, or to get involved with the *Space Application Marketplace*, please fill out the [Space Application Marketplace Interest Form](#).



DISPATCHES



RED CAT LAUNCHES ROBOTICS + AUTONOMOUS SYSTEMS CONSORTIUM TO BRIDGE CRITICAL UAS TECH

Red Cat Holdings, Inc. (Nasdaq: RCAT) has formed the **Red Cat Futures Initiative** (RFI), an independent, industry-wide consortium of robotics and autonomous systems (RAS) partners dedicated to putting the most advanced and interoperable uncrewed aircraft systems into the hands of warfighters.



Anchored by **Red Cat's Teal Drones**, the RFI unites innovative UAS hardware and software companies focused on AI/ML, swarming, FPV, command and control, and payloads. Founding members include **Ocean Power Technologies** (NYSE: OPTT), **Sentien Robotics**, **Primordial Labs**, **Athena AI**, **Unusual Machines**, **Reach Power**, and **MMS Products**. The shared goal is advocacy, integrations and co-marketing that bridges considerable technology gaps through modular open architecture.

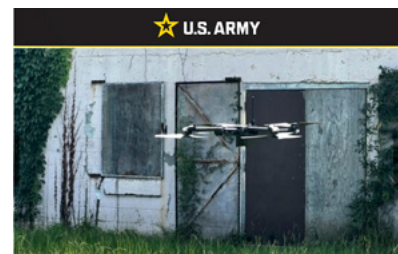
Red Cat developed this initiative to support the Pentagon's desire to accelerate innovation for its Replicator initiative and the need for "attributable" autonomous systems

across air, land, and sea. This includes the **U.S. Army's Short-Range Reconnaissance** (SRR) Program. The consortium will collaborate to ensure requirements-based UAS production that meets the needs of specific missions, as well as reduce vendor lock-in and promote interoperability. The RFI will also focus on R&D and government advocacy that accelerates technology maturation.

Red Cat subsidiary Teal Drones builds its Teal 2 system, designed to support U.S. and allied military operations, public safety organizations, and government agencies, at its Utah facility. Teal 2 is a cost-effective, man-portable sUAS designed to "**Dominate the Night**"™ that has best-in-class night vision, multi-vehicle control support, and a fully modular design. It is both Blue UAS Certified and FAA Remote ID approved. Through technology partnerships, the RFI will exponentially expand the use cases for Teal Drones into multi domain (air, land, and sea) operations.

As a member-based consortium, RFI welcomes broad industry participation by companies of all sizes. Membership benefits include formal marketing support, dual reseller agreements, event and conference collaboration, letters of support for government lobbying, and inclusion in a technology "menu" for visibility and RFQs on the Teal website.

"The need for the UAS sector to move quickly to meet the requirements of Replicator is more urgent than ever," said Jeff Thompson, Red Cat CEO. "The needs of warfighters have shifted dramatically over the past several years, and the key to bridge technology gaps and accelerate maturation is co-innovation amongst hardware and software companies that span the entire value chain. The RFI will spearhead this mission and be a central place to showcase new capabilities and industry voices."



"One of many Teal Drone advantages is the modular design that allows for effortless swapping of propulsion, payload and other hardware based on the specific needs of warfighters," said **Jason Gunter, Red Cat Director of Special Programs**. "Additionally, with Teal as a hub, we've already built a robust ecosystem of partners that specialize in AI and computer vision applications, 3D mapping, target acquisition, swarming, and other sUAS decision support features. The RFI formalizes this but is also a launchpad for co-marketing, tech collaboration, and grassroots advocacy."

About Red Cat, Inc.

Red Cat (Nasdaq: RCAT) is a drone technology company integrating robotic hardware and software for military, government, and commercial operations. Red Cat's solutions are designed to "Dominate the Night"™ and include the Teal 2, a small unmanned system offering the highest-resolution thermal imaging in its class.

DISPATCHES

DELIVER PERSISTENT SPACE SENSING FOR ALL-DOMAIN AWARENESS TO DETER, DEFEND, AND WIN.

OUR NATION'S UNBLINKING EYE

MISSILE WARNING/TRACKING/DEFENSE
 GLOBAL MISSILE WARNING
 Next Gen OPIR Polar, Next Gen OPIR GEO, SBIRS GEO, MEO, LEO, SBIRS GEO
 RESILIENT MISSILE WARNING / TRACKING / DEFENSE
 RESILIENCE through robust diversity
 OUTRACING THREATS through frequent capabilities updates
 INTEGRATED mission architectures will learn, track, and detect threats, adjust and change when needed to detect, defend and win.
 Combined Program Office w/ MDA, SDA

ENVIRONMENTAL MONITORING
 DMSP, Ocean Surface Vector Winds
 Gaps 1,2, Gap 11, Gaps 3, 8, Gaps 5, 6, 9, Gaps 4, 7, 10, 12
 TODAY: DMSP, EWS-G, FUTURE: EWS, Commercial, IoT
 TODAY: DMSP, FUTURE: WSP-M
 TODAY: DMSP, COMBAT 2, FUTURE: "Net" (Networked)
 Capability Development w/ NOAA

PERSISTENT TACTICAL SENSING
 EXPLOIT, BUY
 Data analytics tools ingest existing data to give the warfighter the tactical edge
 Taking commercial capabilities the last tactical mile
 Prototyping w/ AFRL, DARPA, DIU

\$22 billion
 8 ACAT Programs
 2 MTA Programs
 3 Operational Systems

ONE TEAM, ONE FIGHT
 300 Guardians
 collocated at factory, Tap Lab, Product Support Delta, PEO & Acq Deltas, collocated with SDA

Squadron.

This effort will demonstrate the ability to host vital data processing applications on the FORGE Framework, while in an operational environment, during a robust *Operational Acceptance* (OA) campaign.

"Our Nation's ability to quickly sense and make sense of OPIR observations is crucial in maintaining decision-making advantage against adversarial threats and their advanced missile technologies," said U.S. Space Force Col. Robert Davis, Space Force program executive officer for Space Sensing. "This effort enables target tracking earlier and for a longer duration, which significantly increases the event custody chain. Timely response to threats requires a modern architecture capable of hosting data from a range of new and

SSC ACHIEVES OPERATIONAL ACCEPTANCE OF OPIR BATTLESPACE AWARENESS CENTER (OBAC) ON FORGE

Space Systems Command's Space Sensing program executive office, headquartered at Los Angeles Air Force Base in El Segundo, California, has delivered the first of two software deliveries to operations in the Overhead Persistent Infrared (OPIR) Battlespace Awareness Center (OBAC) at Buckley Space Force Base, Colorado.

Delivery of the *FORGE* framework to the OBAC provides increased cyber resilience, and enhanced mission applications to operators. OBAC operations on FORGE bolster the OPIR battlespace awareness and technical intelligence missions with significant cyber-security improvements and enhanced missile detection and tracking. Additionally, the operational trial period preparing for this delivery provided opportunities to significantly stress the FORGE framework with real-world events.

Notably, the framework performed in family with the legacy system, enabling the battlespace awareness and technical intelligence mission as the OBAC's operational baseline. Proven sustainment of mission capability on the FORGE framework is essential to ensure coordination of a successful defense against threats around the world.

The FORGE capability architecture is foundational to provide OPIR data to operational warfighters, and to enable the U.S. Space Force's pivot to a resilient missile warning, tracking, and defense architecture. FORGE provides a modern, cyber-resilient, flexible, scalable, and government-owned open architecture needed to support the development, integration, and delivery of OPIR processing applications for rapid response to emerging threats.

The FORGE framework facilitates open architectures that maximize utilization of the OPIR constellation as well as accelerating the ability for new capabilities to be added frequently and efficiently. It enables the use of existing *Commercial Off-The-Shelf* (COTS), *Government Off-The-Shelf* (GOTS), and *Free or Open-Source Software* (FOSS) products, enabling a rapid pivot to new solutions depending on mission needs. This approach expands opportunities for a wide range of vendors, thus empowering the government to have access to the latest industry innovations while simultaneously strengthening and increasing resiliency in the weapon system and industrial base.

Marking a significant step toward transforming the Nation's ability to respond to new missile threats by considerably reducing the time between development and operations, this operational delivery provides new OPIR capabilities to the 2d, 8th and 11th *Space Warning Squadrons*, as well as the 64th *Cyberspace*

legacy sensors that enables the development of applications to address these threats. FORGE's modular architecture with an agile development approach is showing that you can deliver fast even in tough, complex mission areas. I'm extremely excited about what the combined government and industry team has already been able to do, and I look forward to the next operational capability delivery."

"This first delivery is the start of many deliveries to come," said U.S. Space Force Lt. Col. Morgan Sparks, FORGE materiel leader. "Our next delivery will build on our cyber resilience and provide even greater capability to the warfighter, modernizing the operator interface with modern data visualization technologies while significantly improving our nation's ability to detect stealthier and additional quantities of threats sooner, and to track them longer. We look forward to continuing to build upon this strong foundation to enable faster deliveries to operators."

"Partnerships with the operations community have been paramount in our development process," said Mr. Jonwa Kim, senior materiel leader, Strategic Missile Warning Ground Delta. "It is through the strength of these partnerships that will ensure our nation possesses the most advanced strategic missile warning capabilities to meet new and emerging threats."

"Ensuring our acquisition efforts further enable operators to combat space threats is paramount in our procurement and development processes," said U.S. Space Force Capt. Malik McCoy, FORGE framework program manager and former Space Delta 4 operator. "Our shoulder-to-shoulder partnership with operational users provided relevant perspectives and shaped our approach. We drove cyber resilience and advanced mission applications into the system, transitioning our legacy systems to a more modern architecture. These efforts are paramount to provide a timely defense to counter new and emerging missile threats."



DISPATCHES



GA-ASI SELECTED TO BUILD CCA FOR AFLCMC

General Atomics Aeronautical Systems, Inc. (GA-ASI) has been selected to build production representative flight test articles of the Collaborative Combat Aircraft (CCA) for the [U.S. Air Force Life Cycle Management Center's \(AFLCMC\) Advanced Aircraft Division.](#)



This option contract award by the Advanced Aircraft Division exercises the critical design, build, and flight test on the existing CCA contract with GA-ASI following an initial 6-month phase that culminated in a successful CCA *preliminary design review (PDR)* earlier this year.

The CCA program aims to be a force multiplier, developing a low-cost, modular, unmanned aircraft equipped with advanced sensors or weapons and operating in collaborative teams with the next generation of manned combat aircraft.

In February 2024, GA-ASI successfully conducted the maiden flight of the XQ-67A CCA prototype aircraft validating the “genus/species” concept pioneered by the [Air Force Research Laboratory \(AFRL\)](#) as part of the *Low-Cost Attributable Aircraft Platform Sharing (LCAAPS)* program.

This program focused on building several aircraft variants from a common core chassis. Since then, this prototype for CCA has successfully completed two



Photo of the XQ-67A CCA prototype, courtesy of GA-ASI.

additional test flights, laying the groundwork for a successful production and flight test program. GA-ASI's CCA production representative design is based upon the XQ-67A Off-Board Sensing Station developed by GA-ASI for the AFRL.

To complement the CCA contract, GA-ASI will continue to conduct a series of autonomy and mission system tests on the [MQ-20 Avenger®](#) UAS and [XQ-67A](#) to accelerate the readiness of operational autonomy. These live flight tests will continue to demonstrate the readiness of the full mission capability to support the emerging *U.S. Air Force Autonomous Collaborative Platforms (ACP)*.

*“The CCA program redefines the future of aviation and will shape the USAF acquisition model to deliver affordable combat mass to the warfighter at the speed of relevancy,” said **Mike Atwood, Vice President of Advanced Programs for GA-ASI.***

*“Throughout our 30-year history, GA-ASI has been at the forefront of rapidly advancing unmanned aircraft systems that support our warfighters,” said **GA-ASI President David R. Alexander.** “The USAF is moving forward with GA-ASI due to our focused commitment to unmanned air-to-air combat operations and unmatched UAS experience, ensuring the production of the CCA aircraft at scale to deliver affordable combat mass for the warfighter.”*

DISPATCHES



KRATOS DEFENSE & SECURITY SOLUTIONS COMPLETES ZEUS SOLID ROCKET MOTOR (SRM) DEVELOPMENT

Kratos Defense & Security Solutions, Inc. (Nasdaq: KTOS) has announced that the company's [Space & Missile Defense Systems \(SMDS\) Business Unit](#), a part of Kratos' [Defense & Rocket Support Services \(DRSS\) Division](#), has successfully completed the static test firing of the Zeus 2 solid rocket motor (SRM) with [Aerojet Rocketdyne](#), an [L3Harris Technologies \[NYSE: LHX\]](#) company, at their Camden, Arkansas facility.

This Zeus 2 milestone, combined with the successful Zeus 1 static test firing last year, completes the development phase of Kratos' new and affordable, SRM family. Zeus 1 and Zeus 2 are high-performance 32.5-inch diameter solid rocket motors envisioned and internally funded by Kratos.

The Zeus motors, designed with commonality, versatility, and affordability in mind, coupled with the Kratos ongoing development of the *Erinyes* and *Dark*

Fury Hypersonic Flyers demonstrates Kratos' commitment to investing in crucial defense industrial base technology.

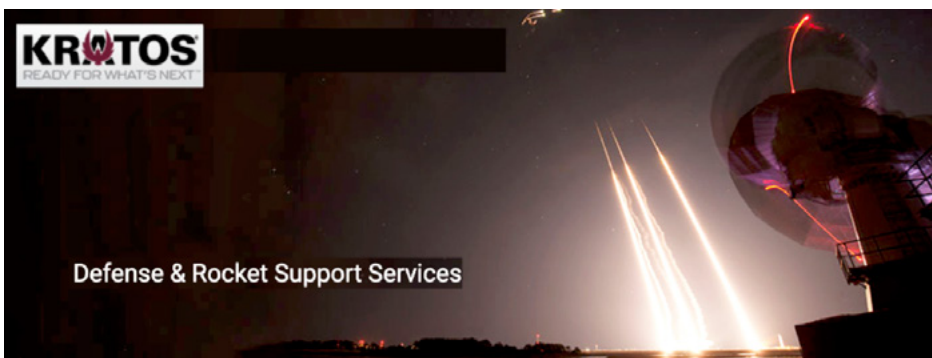
Kratos' technology investments are delivering leading-edge systems and expanding our extensive portfolio of Hypersonic Flyers and SRMs available for customers.

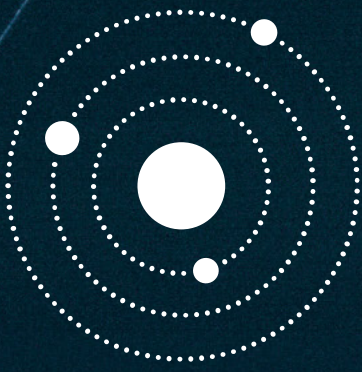
Kratos has now initiated orders for a combined total of nine Zeus 1 and Zeus 2 SRMs in preparation for upcoming customer flights.

The Kratos developed Zeus family of SRMs is in direct response to the urgent need for affordable commercial launch vehicle stages for hypersonic test, ballistic missile target, sounding rocket and other customer missions.

Dave Carter, President of the KDRSS Division, said, "I am very excited to introduce Kratos' family of Zeus SRMs and commend our SMDS group and teammate, L3HARRIS/Aerojet, for successfully completing this crucial motor development program. Zeus motors enable us to bring to market affordable rocket systems to support critical MACH-TB Hypersonic testing, NASA Sounding Rocket Program experiments, and Navy/MDA target program requirements."

Eric DeMarco, President and CEO of Kratos Defense & Security Solutions, Inc., said, "Kratos' successful completion of this internally funded Zeus family of motors will enable rapid and affordable hypersonic testing and be 'first to market' with a highly relevant system to support DoD, NASA and commercial customers. At Kratos, we are committed to rapid development, delivery of relevant systems and introduction of affordable technology to support warfighter requirements for the United States and our Allies' National Security."





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