



ASSURED PNT SUMMIT

ENHANCING PNT CAPABILITIES TO ENSURE A
RESILIENT NATIONAL DEFENSE



APRIL 14-15, 2021 | NATIONAL HARBOR, MD

SUMMIT OVERVIEW

Program Design & Goal:

DSI's Assured Positioning, Navigation, & Timing (PNT) Summit will bring together members of the Military Services, DoD, Federal Government, Industry & Academia in a 'Town-Hall' style forum to discuss how important GPS & space based PNT systems are to the overall resilience of the Warfighter as well as critical infrastructure across the United States & abroad. This event will offer Senior level insight into how the U.S. Military has been a leader in integrating PNT into its everyday operations & how such capabilities have become vital to the military's ability to shape the global arena, deter aggression, and fight and win wars, now and in the future. Attendees at forum will also have a chance to hear about the steps government agencies, such as DHS, are taking to understand & be proactive about the vulnerabilities that exist in critical infrastructure & networks when PNT services are manipulated.

The Assured PNT Summit will examine current efforts across the Army, Air Force, & other services to integrate new PNT capabilities to help the Warfighter remain ready and resilient across all warfighting domains, while also addressing key capability gaps in the existing GPS enterprise that the adversary is trying to exploit & target through jamming/spoofing attacks. Innovative new projects, systems, & alternate PNT technologies such as MAPS/DAPS systems, GPS Anti-Jam M-Code, & NTS-3 satellite concept, will also be explored at this Summit, all of which, are aiming to transform traditional GPS signals & provide the Warfighter with timely, accurate, & robust PNT information. Finally, members of industry can also benefit from attending this event as Senior leaders will be offering their perspective on the need for more collaboration in order to improve PNT assurance efforts, GPS signal security, & ultimately, disrupt the adversaries' use of PNT information.

DSI's team specializes in the extensive research and development of our Summits' content and focus areas; we will assemble the most respected minds in the areas of GPS & PNT, from key military and civilian offices. Our non-partisan approach allows us to reach across all services and organizations to bring together a truly holistic group of decision makers and solution providers.

Operating Guidelines:

DSI's Summit directly supports US Military Services, DoD, Federal Government Agencies, and Industry partner priorities by providing a conduit for officials to efficiently reach audiences outside of their respective offices that directly impact their department's mission success, at no charge to the government, and in an efficient expenditure of time.

DSI's Summit will provide a forum to address and improve internal and external initiatives, meet with and hear from partner organizations, disseminate vital capability requirements to industry, increase visibility within the larger community, and generally support their mission.

*This Summit is open and complimentary to all Military, DoD and Federal employees and is considered an educational and training forum. (Industry and academia members are charged a fee of attendance)

General Target Audience:

US Military Commands, Government Agencies, Acquisition Authorities and Government Research Labs, Industry Partners, and US Technology Solution Providers

Specific topics to be discussed include:

- Leading current DoD initiatives toward integrating new PNT capabilities to help the Warfighter remain resilient in a dynamic threat environment
- Utilizing MOSA to for critical PNT-related products to enable a Soldier's PNT capabilities in all warfighting domains
- Synchronizing PNT, Navigation Warfare, & Space capability development efforts across the Army to help reduce key capability gaps
- Delivering resilient, affordable & sustainable Space capabilities such as modernized GPS to enhance Warfighter superiority
- Providing alternate Positioning, Navigation, & Timing (PNT) for potential Global Positioning System (GPS)-denied environments
- Accelerating the implementation of cutting-edge Air Force research projects such as NTS-3 GPS Satellite to provide the most value to the Warfighter
- Overseeing the collection of GPS-related Information from multiple federal Agencies in an effort to improve & maintain Space-based PNT capabilities
- Advancing efforts to provide GPS protection for all Naval Air platforms
- Detailing the DHS plan to test the vulnerabilities of critical infrastructure systems, networks, & assets If PNT services were to be disrupted or manipulated

SUMMIT SCHEDULE

APRIL 14TH, 2021

7:45 **Registration and Light Breakfast Reception Open**
(Eastern Daylight Time)

8:30 **Event Chairman Opening Remarks— John Guenard, Autonomy & Positioning, Hexagon**

8:45 ***Moderator Remarks***
Dana Goward (Confirmed), President & Director, Resilient Navigation & Timing Foundation

9:00 – **Overseeing the Collection of GPS-related Information from Multiple Federal Agencies in an Effort**
9:45 **to Improve & Maintain Space-Based PNT Capabilities**

- Providing uninterrupted availability of positioning, navigation, and timing services for the DoD & other government agencies
- Addressing military requirements toward enhancing capabilities to deny hostile use of any space-based PNT services
- Near term considerations toward coordinating individual Departments' and Agencies' PNT program plans, requirements, budgets, & policies

Harold W. Martin III, SES (Confirmed)

Director, National Coordination Office for Space-Based Positioning, Navigation, and Timing

James Miller (Confirmed)

Deputy Director, Policy & Strategic Communications - Space Communications and Navigation
Human Exploration and Operations Mission Directorate - NASA Headquarters

9:45-10:30 **Leading Current DoD Initiatives Toward Integrating New PNT Capabilities to Help Warfighters**
Remain Resilient in a Dynamic Threat Environment

- Ensuring the earliest operational availability for modernized military and navigation warfare (NAVWAR) capabilities
- Integrating trusted & protected sources of PNT information for warfighting systems & fielded forces to meet all Joint Force requirements
- Near term goals toward preventing the use of PNT services & jamming attempts by adversaries in areas of military operations

Anthony C. Smith, SES (Confirmed—Virtual)

Director, C3I
DoD CIO

10:30-11:00 **Network Break & Exhibits**

11:00– **Synchronizing PNT, Navigation Warfare, & Space Capability Development Efforts Across the**
11:45 **Army to Help Reduce Key Capability Gaps**

- Accelerating the development & fielding of modernized Soldier capabilities such as the MAPS/DAPS systems that will help with providing more robust, accurate PNT data
- Providing defensive and offensive PNT techniques and technologies in support of defense or offensive operations to counter adversaries
- Facilitating collaborations with industry to utilize innovative new technologies that will advance Army's PNT assurance efforts

William Nelson, SES (Confirmed)

Director, APNT CFT, Army Futures Command

SUMMIT SCHEDULE

APRIL 14TH, 2021

11:45 –
12:30

Delivering Resilient, Affordable & Sustainable Space Capabilities Such as Modernized GPS to Enhance Warfighter Superiority

- Leveraging the M-Code signal-in-space to provide more secure position, navigation and timing (PNT) to the Warfighter
- Fielding the 'Gold Standard' of PNT with the launch of the GPS III Satellite, Space Vehicle 02
- Working with industry & other mission partners to improve PNT signal security & enhance anti-jamming/anti-spoofing capabilities for the Warfighter

Cordell "Del" DeLaPena, SES (Confirmed)

Program Executive Officer for Space Production, Space & Missile Systems Center, USAF

12:30-1:30 **Networking Lunch**

1:30 –
2:15

Accelerating the Implementation of Cutting-Edge Air Force Research Projects Such as the NTS-3 GPS Satellite to Provide the Most Value to the Warfighter

- Guiding USAF's development of the NTS-3 satellite, with the goal of transitioning future generations of GPS & potential augmentations to national PNT capabilities
- Identifying key emerging technologies that will help with the integration of multi-domain capabilities such as the Vanguards Projects
- Near term goals toward gathering innovative ideas & working closer with industry to help field capabilities that will transform air, space, & cyber operations

Brig Gen Heather L. Pringle, USAF (Confirmed — Virtual)

Commander, Air Force Research Laboratory

2:15 -
3:00

NIWC Atlantic Strategy: Supporting New technologies Being Developed & Fielded for the Fleet When Operating in a Global Positioning System (GPS) or Sensor Denied Environment

- Overseeing efforts at the M-PNT Laboratory to ensure the safety of navigation and the safety of our warfighters at sea
- Enhancing the information warfare mission at NIWC Atlantic through ensuring that accurate PNT is available to the Warfighter for a decisive advantage at sea
- Near term goals toward facilitating RDT&E efforts for both surface and submarine PNT systems to increase overall mission success

CAPT Wesley Sanders, USN (Confirmed)

Commanding Officer, Naval Information Warfare Center (NIWC) Atlantic

3:00-3:10 **Motivation for Signals-in-Space Integrity Monitoring**

- GPS Signals-In-Space (SIS) Integrity Monitoring is expected to be critical to future PNT resilience, specifically to LEO systems that use GPS SIS as the basis for alternative PNT dissemination systems to the warfighter
- SIS integrity monitoring is vital to alt-PNT space-based systems in switching from GPS to on-board resilience measures
- JHU/APL has created algorithms that we assess are effective for spacecraft integrity monitoring
- We have simulated and laboratory results that show the effectiveness, now seek partnerships for further investigation

Dr. Ryan Mitch (Confirmed)

Section Supervisor, Navigation, Astrodynamics & Control Systems Group, Space Exploration Sector
Johns Hopkins University Applied Physics Laboratory

SUMMIT SCHEDULE

APRIL 14TH, 2021

3:10-3:40 Networking Break & Exhibits

3:40–4:25 SMDC CoE Initiatives Toward Integrating Technological Alternatives to GPS for PNT

- Working with Army Futures Command to create resiliency within the military's existing GPS enterprise & find different ways to disrupt the adversaries' use of PNT information -
- Using small satellites and other technologies from the commercial industry for communications, surveillance and PNT
- Training and educating agile, adaptive, and ready Soldiers and leaders on how to react to the threats they face if an electronic attack occurs

Richard De Fatta, SES (Confirmed)

Director, U.S. Army Space & Missile Defense Center of Excellence

4:25-5:10 Utilizing MOSA for Critical PNT-Related Products to Enable a Soldier's PNT Capabilities in All Warfighting Domains

- Promoting the agile development, maturation & transition of technology to deliver solutions that address PNT operational gaps while also staying ahead of the threat
- Leveraging modular open systems architectures (MOSA) & layering radio frequency signals with PNT data from different technologies to achieve 'Assured PNT'
- Forging new partnerships in industry & academia, and creating common standards, to ensure expediency, communication, & continuity for PNT technologies

COL Nickolas Kioutas, USA (Confirmed)

PM, PNT
PEO IEW&S

[End of Day 1](#)

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- 8:00** **Registration and Light Breakfast Reception Open**
- 8:30** **Event Chairman Opening Remarks—John Guenard, Autonomy & Positioning, Hexagon**
- 8:45–** ***Moderator Opening Remarks***
Dana Goward, President & Director, Resilient Navigation & Timing Foundation
- 9:00–** **Guiding the Future of Resilient PNT Capabilities**
9:45
- Dr. John Betz (Confirmed)**
Fellow Emeritus, The MITRE Corporation
- 9:45–** **Detailing the DHS Plan to Test Vulnerabilities of Critical Infrastructure Systems, Networks, &**
10:30 **Assets If PNT Services Were to be Disrupted or Manipulated**
- Building better receivers, the DHS Conformance Framework
 - Testing & evaluating sector critical vulnerabilities to PNT anomalies - it's not just about GPS/GNSS receivers
 - Integrating PNT into the risk management framework
- James Platt (Confirmed)**
Chief, Strategic Defense Initiatives, DHS
- 10:30-10:40** **Tech Talk—L3Harris**
- 10:40-11:10** **Networking Break & Exhibits**
- 11:10–** **Panel Highlight – Enhancing PNT Capabilities for Current & Future Military Operations**
12:30
- With increased fear of jamming/spoofing attacks from the adversary on Warfighter GPS signals in recent times, the importance of strengthening Military PNT capabilities & disrupting these attempts has never been higher. This panel will go into detail about how the U.S. military will need to remain the leader in PNT across the conflict continuum. It will also feature a group of Senior thought leaders across military, government, & industry that will provide perspective on the current efforts underway to create robust, resilient sources of PNT in order to maintain mission effectiveness.
- Panel Moderator –
Kevin Coggins (Confirmed)
VP, Cyber & Engineering
- Panelists –
COL Jason Joose, USA (Confirmed)
Chief of Staff / APNT Signature Effort Lead, Army Futures Command
- Del Champ (Confirmed)**
Assured PNT lead, Department of the Air Force
- LTC Kai J. Thompson, USA (Confirmed)**
Space Operations Officer/FA40, Chief, Multi-Service Integration, S5B, United States Space Force

SUMMIT SCHEDULE

APRIL 15TH, 2021

Dr. John Betz (Confirmed)
Fellow Emeritus, The MITRE Corporation

William Bollwerk (Confirmed)
Former OSD Co-lead for a Joint Science & Technology PNT Research Team, DoD

12:30 Networking Lunch

1:30–2:15 Use of Ultra Wideband to Enhance GNSS

- Our recent deployment with TMobile in the city of Greenville South Carolina including robot delivery and autonomous driving
- Use of enhanced GNSS for connected vehicle applications in New York City.
- Use of enhanced GNSS for autonomous EV charging in the JFK airport

David Bruemmer, Board Advisor, Autonomy Institute (Confirmed)

2:15 – 3:00 A System of Systems Approach to Assured PNT

- A professional mariner/personal perspective on why we need global RPNT
- A maritime GPS denial case study or two – how many more do we need before we address the RPNT need?
- NLA International's work to support the RPNT needs of end users, notably but not exclusively mariners
- Findings of the MarRINav project. <https://marrinav.com/>
- eLoran is an immediate compelling answer – why, oh why, are we still asking the question?

RADM Nick Lambert, RN (ret) (Confirmed—Virtual)

3:00-3:10 Short Break

3:10 – 3:55 Advancing Efforts to Provide GPS Protection for All Naval Air Platforms

- Ensuring the Warfighter has continued access to GPS through the use of Anti-jam (AJ) Antenna Systems
- Utilizing emerging technologies to counter GPS Electronic Warfare threats due to intentional and unintentional interference
- Working toward combining NAVWAR antenna and antenna electronics into one unit to enhance future PNT capabilities

CAPT Andrew Gibbons, USN (Confirmed– Virtual)
PM, Navy Communications and GPS Navigation Program
PMW/A -170's Air Navigation Warfare (NAWWAR) Program

3:55-4:30 Facilitating a System of Systems Approach to Resilient PNT Across the DOT

Karen L. Van Dyke (Confirmed—Virtual)
Director, Office of Positioning, Navigation, and Timing (PNT)
Office of the Assistant Secretary for Research & Technology, U.S. Department of Transportation (DOT)

4:30 End of Summit