

WHO

SYSCOM: NAVWAR

Sponsoring Program: PMW/A-101

Transition Target: Tactical Radios

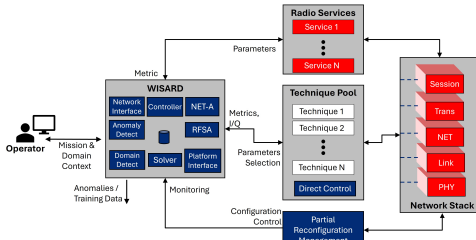
TPOC: (619) 252-8077

**Other Transition Opportunities:** All Department of Defense (DoD) tactical radio systems that can benefit from machine learning (ML) controlled/informed optimization that improves performance across operational domains while reducing the degree of required radio operator intervention and expertise.

**Notes:** The technology being developed to support Domain Optimization of Tactical Line of Sight Communications is the Wireless Intelligent Service for Automatic Radio Domain optimization (WISARD) software-based solution that utilizes machine learning to optimize operation of tactical radio systems.

GIRD Systems is a small business defense contractor that is innovative and agile in satisfying the DoD’s signal processing and communication needs. GIRD has successfully partnered with key defense contractors to develop innovative and technologically superior signal processing solutions that are currently being evaluated for transition into operational use by industry and military customers.

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2025, GIRD Systems, Inc.

WHAT

**Operational Need and Improvement:** There is an increasing number and sophistication of adversarial and friendly communication systems and waveforms operating across multiple bands which impact radio communications during mission execution. WISARD provides a solution for optimizing radio link selection and performance across platforms and waveforms, allowing automated operation and reducing radio operator intervention and expertise.

**Specifications Required:** In order to provide these improvements, WISARD must maintain awareness of a wireless network’s Operating Domain by processing existing information available on the wireless network’s platform. Based on this information, WISARD must select and / or configure a platform’s available Techniques and Services to align with the current Operating Domain. While performing these requirements, the operation of WISARD must result in a reduction of the degree of operator intervention and operator expertise necessary to manage the platform through changing Operating Domains. Further, WISARD must provide machine-readable and human-interpretable understanding of the mission, operating domain, and current conditions.

**Technology Developed:** GIRD Systems is developing the Wireless Intelligent Service for Automatic Radio Domain optimization (WISARD) technology, an ML-based software solution that improves the performance of tactical radio communication systems employed by the Army, Navy, and other services, by optimally aligning system parameters and configuration with operational domains. WISARD also reduces the degree of required radio operator intervention and expertise and improves the ease of use of WISARD managed systems.

**Warfighter Value:** WISARD enables optimal operation of the tactical radio resources and operation for the given operating conditions in an automated and informative fashion thereby enabling the warfighter to focus on the mission rather than equipment operation.

WHEN

Contract Number: N64267-24-C-0090

Ending on: Sep 25, 2026

Milestone	Risk Level	Measure of Success	Ending TRL	Date
System Requirements Defined	Low	Customer Requirements Acceptance		2nd QTR FY25
Studies Complete	Medium	Component Software Designed	3	1st QTR FY26
Preliminary Design Review	Medium	Preliminary Design Acceptance		4th QTR FY25
Prototype Capability Demonstration #1	Low	Successful Demonstration of Capability Set	4	1st QTR FY26
Prototype Capability Demonstration #2	Medium	Demonstration with Target Platform via External Interfaces	5	2nd QTR FY26
Prototype Capability Demonstration #3	Medium	Integrated Demonstration on Target Platform	6	4th QTR FY26

HOW

**Projected Business Model:** GIRD will engage industry partners to assess the contribution of the technology and identify a strategy for the potential market and potential customers. GIRD plans to license the technology as software/firmware IP to be integrated into customer’s communication platforms. GIRD is identifying other potential applications within the DoD and is engaging industry partners for integration of the technology into their products.

**Company Objectives:** Transitioning the WISARD radio performance optimization software is highly relevant to our current market and customers since GIRD has been involved in developing novel, custom waveforms for the DoD and commercial partners, as well as implementing existing military and commercial waveforms to prime vendors’ software defined radio (SDR) platforms. GIRD’s past and current ML-based orchestration technology developments for the DoD (e.g., WISDOM) comprise major thrusts in this direction as is the application of ML to optimal decision making in complex, dynamic scenarios. Transitioning our technology into a program of record carries weight with GIRD’s other potential customers and shows that GIRD is capable of delivering and integrating new technologies into the DoD.

**Potential Commercial Applications:** The ML decision engine forming the core of the WISARD technology has application to commercial systems via optimally configuring radio/communication systems and optimally routing data through alternate systems to avoid congestion and manage network loading. The automation provided through WISARD software reduces the amount of required radio operator intervention in the system operation, thereby reducing the expertise and training required by an operator and associated operating costs. Further, the WISARD training framework can serve to generate scenarios and network conditions to intelligently test and identify corner case conditions which impact system performance.

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