



What makes pntOS different?



Adaptability

As it is in life, the only constant in PNT mission requirements is change. New threats, sensor availability, and the rapid pace of technology make adaptability paramount. Real-time pluggability enables modification of both the sensor types and the integration strategies used to bring sensor data into the sensor fusion engine.



Cost

The inflated cost and time requirement of researching various sensor phenomenologies is greatly reduced when multiple vendors bring their unique expertise to bear. The result is a highly efficient, agile, and fully integrated PNT system that can outpace new threats with new capabilities.



Integrity

With every sensor added to a PNT system comes an increased potential for failure amongst diverse components. Integrity safeguards any sensor added to a PNT system from introducing its errors into the system and reduces the potential for failure.



Interoperability

Standard message formats are essential for interoperability. All types of PNT sensors and components from one system platform are easily shared or re-used in another.



Multi-Vendor Solutions

Relying on a single vendor for every part of a complex PNT system adds significant time and cost to the development process. Digital acquisition enables best-of-breed solutions for easy sensor integration, replacement, or modification.

Open. Modular. Pluggable.

pntOS is an open source, government-owned plugin architecture for building integrated PNT sensor fusion applications for all operational environments. Designed for cost, schedule, and performance efficiencies, pntOS features standard message formats that make all plugins—GOTS, community shared, and proprietary—individually swappable without the need for modification. Custom plugins can be developed using any programming language and made available to the pntOS community or used for proprietary applications without risk of disclosure.



GOVERNMENT-OWNED, COMMUNITY ADOPTED

Available to U.S. Government agencies and their contractors.



OPEN SOURCE

All source code provided free with a provisional license.



GOTS, COMMUNITY, AND PROPRIETARY PLUGINS

Standard message formats make all plugins reusable and interoperable, regardless of programming language.



To learn more about pntOS visit pntOS.com

The modern Warfighter depends on continuous and reliable access to position, navigation, and timing (PNT) information. Although highly available, accurate, and globally recognized as the preeminent PNT solution, GPS requires augmentation from a diverse set of interoperable sensing technologies.

The PNT Operating System (pntOS) meets this need.

pntOS Plugin Catalog

	Transport Plugins		Fusion Engine Plugins		Sensor Modeling Plugins
GOTS Plugins	G1G2		G1G2		G1G2
Community Plugins	C1C2		C1C2		C1C2
Proprietary Plugins	P1P2		P1P2		P1P2

- Transport Plugins**
For different data bus protocols (LCM, DDS, ZeroMQ, etc.).
- Fusion Engine Plugins**
For sensor fusion algorithms (defines the type of filter to use).
- Sensor Modeling Plugins**
For fusing sensor data with other sensors to get a PNT solution (sensor measurement model, error representations, etc.).
- Platform Interface Plugins**
Conform to the unique interface requirements for each platform or client system.
- Controller Plugins**
Define the overall approach (i.e., INS error state estimator, direct position, velocity, attitude estimation with no inertial).
- Integrity Plugins**
Implement different algorithms for GPS or complementary PNT sensor assurance.

The plugin architecture of pntOS adapts to a wide variety of use cases ranging from deeply embedded systems and low SWAP environments to cloud-based, massively parallel deployments.

The plugins define every operational aspect of a PNT system: sensors, algorithms, the concurrency model, memory ownership model—everything.

pntOS Daemon

