

Our Country is At Risk: The Need for GPS Backup



GPS is vulnerable and needs a resilient layer

GPS plays a critical role in technology we use every day, from the agricultural sector to the power grid to financial services. Lack of signal power and encryption makes GPS vulnerable to jamming, and increasing sophistication by foreign adversaries has led to GPS spoofing of locations, both of which are putting our national security at risk.



By the Numbers: Position, Navigation and Timing accuracy is more important than ever

\$1.4T

The value of PNT (Positioning, Navigation & Timing) services to the economy since first being introduced.

\$1B

\$1 billion of economic activity per day when GPS signal is down or unavailable.

\$700B

GPS annual value based on NIST study (2021 projected)

[Source: \(NIST PDF – nist.gov\)](#)

A Timeline of Recent GPS Interferences

2022

Russia has been outspoken about their abilities to destroy GPS satellites, and GPS signals around the Russian border and in and around Ukraine are being consistently jammed and spoofed.



- Noted GPS jamming in and around Ukraine ahead of the Russian invasion ([spacenews.com](https://www.spacenews.com))

- Numerous reports of GPS jamming over Finland, near the Russian border. ([guardian.com](https://www.theguardian.com)), ([mentourpilot.com](https://www.mentourpilot.com))
- EU's Aviation Safety Agency issues a warning of GNSS spoofing and jamming in aircrafts with noted incidents in flights over Europe. ([EASA Safety Information Bulletin: 17, March 2022](https://www.easa.europa.eu/safety-information-bulletin))
- Israel has been reporting increasing issues of planes having significant issues likely due to Russian GPS jamming. ([timesofisrael.com](https://www.timesofisrael.com))
- Defense Department acknowledges that we haven't seen the full extent of Russia's spoofing and jamming capabilities. ([breakingdefense.com](https://www.breakingdefense.com))

2021

November 15, 2021: Russia shot down its own satellite and announced on state television that they could take out all of the GPS satellites used by NATO as a warning not to interfere with Ukraine. ([express.co.uk](https://www.express.co.uk))

June 2021: NATO ships had their GPS and AIS (Automatic Identification System) spoofed so it looked as if they were in the Crimea headed towards a Russian military port when they were in fact in the Ukraine. ([nationalinterest.org](https://www.nationalinterest.org))

2019

A 2019 report by a Washington, DC think tank C4ADS documented more than 10,000 cases of GPS interference in the last 5 years from Russia, including noting that Putin is intentionally spoofing his location and jamming GPS signals whenever he travels. ([C4ADS – Above Us Only Stars](https://www.c4ads.com))

2017

June 2017: First examples of GNSS spoofing with more than 20 ships in the Black Sea reporting issues and showing the ships at a Russian airport.

2016

North Korea jams GPS signals into South Korea, impacting thousands of flights and ships. ([bbc.com](https://www.bbc.com))

Iran's Revolutionary Guard captures two US Navy boats in the Persian Gulf and detains servicemen; US ships had mistakenly entered Iranian waters after experiencing navigational issues (GPS spoofing).



THE NEXTNAV SOLUTION

A terrestrial alternative to GPS

Think of NextNav's TerraPoiNT solution like a GPS satellite on the ground. With a few well placed beacons, TerraPoiNT covers entire metropolitan areas with encrypted signals that are 100,000x stronger than GPS. Resistant to spoofing and jamming, TerraPoiNT also reaches the buildings and urban canyons that GPS can't. The result: highly available, reliable position, navigation, and timing (PNT) services for the next generation of location-enabled platforms.



TerraPoiNT Features

DOT ranked #1 operational performance across the board

In independent tests performed by the US Department of Transportation (DOT), NextNav TerraPoiNT beat out ten competitive solutions, ranking number one in every operational category of position, navigation, and timing. TerraPoiNT was also the only solution to participate in every aspect of the testing regimen

Dedicated spectrum

TerraPoiNT operates nationwide on dedicated spectrum owned by NextNav, employing GPS-compatible waveforms which make it easy to integrate into any piece of hardware.

Signals 100,000x stronger than GPS

TerraPoiNT's terrestrial deployments deliver encrypted signals that are highly resistant to jamming and other interference, reaching inside buildings and other places GPS can't.