

NAVSYS GNSS Signal Architect

Customized MATLAB-based Tools for GPS and GLONASS Signal Generation

Harnessing the Capabilities of the NAVSYS GNSS Signal Simulation Toolbox for Robust IQ Baseband and RF Signal Generation:

The NAVSYS Signal Architect tool leverages the capabilities of the NAVSYS GNSS Signal Simulation Toolbox to provide users with a MATLAB-based GPS and GLONASS signal generation capability at a much lower cost than currently available on the market. The Signal Architect allows users to specify a trajectory and a complete set of simulation parameters and then creates an IQ data file at baseband or IF. The data file can then be used for subsequent analysis within MATLAB or can be provided to RF signal generators to create a signal suitable for playback into a GPS or GLONASS receiver. Since all signal processing is implemented in MATLAB, the user has complete flexibility to manipulate the signal at various stages of generation or post-generation to simulate signal anomalies, interference, jamming, multipath, and integration with other simulations.

Target Applications and Users:

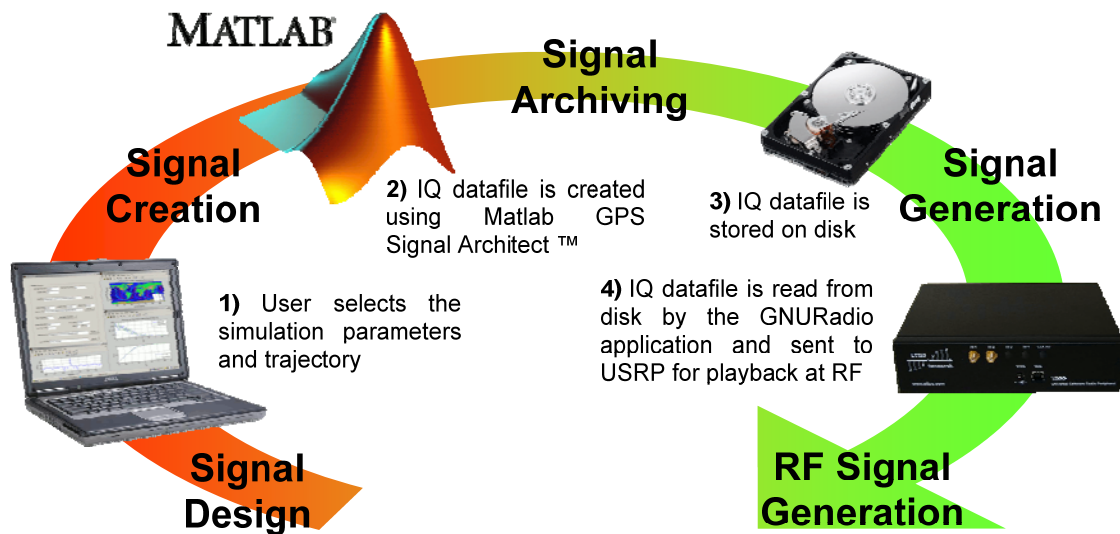
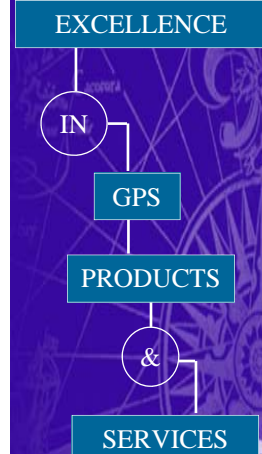
The Signal Architect is ideal for applications requiring:

- High degree of flexibility not found in other hardware-based signal generators
- The ability to make custom modifications to the simulator to support unique testing requirements

- Highly repetitive testing where consistency between test runs is critical
- An ability to incorporate arbitrary sources of interference, jamming, and other waveforms, and the ability to use MATLAB-based multipath models
- Low initial and support costs
- No vendor lock-in.

Signal Architect Features

- User can generate scenario files using GUI or script files
- User defined static or dynamic profiles
- Satellite signal power modeling
- All in view satellite simulation
- Comprehensive models for navigation subframe ephemeris data
- Customized scenario generation files generated by NAVSYS also available
- Dynamic trajectory generation from NMEA \$GGA message
- Generates simulated GPS and GLONASS sampled IF data files
- Modulates simulated sampled IF data compatible with USRP radio and the RaceLogic LabSat radio
- Ionospheric models with user defined alpha and beta parameters
- Troposphere models
- Multipath models to include GPS SVN 49 (PRN 1) anomalies
- Custom models on request



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Open Architecture Software-based Simulator:

The software based system allows the user to insert signal conditions such as ionospheric and troposphere models, multipath effects, and satellite obscuration.

Compatibility with the Ettus Research USRP

Product Family: The data files produced by the NAVSYS Signal Architect are compatible with the Ettus Research USRP product family. The combination of the NAVSYS Signal Architect and the Ettus USRP radio makes for a highly-flexible GPS and GLONASS signal generation capability.

For additional information on the Ettus Research USRP product family see the Ettus Research website at <http://www.ettus.com>

Compatibility with LabSat Hardware:

The data files produced by the NAVSYS Signal Architect are compatible with the Racelogic LabSat 2 GPS and GLONASS Simulator. LabSat is a low cost simulator which gives the user the ability to record and replay real-world GPS and GLONASS RF data. For additional information on the LabSat products see the Racelogic website at <http://labsat.co.uk/>

Custom GPS and GLONASS Scenario Files:

Do you already own a Ettus USRP product or RaceLogic LabSat unit? Let NAVSYS generate the scenario files for you.

NAVSYS will work with you to design a scenario file that meets your unique test requirements. With prices starting at \$1,500 USD for up to a two hour simulation profile, a custom scenario can be an attractive alternative for users who want a simulation capability for testing but don't need the full flexibility of the Signal Architect simulation tools. NAVSYS will deliver scenario files that simulate real-world data generated from your supplied NMEA format trajectory generation file, reproducing the vehicle dynamics experienced by a GNSS receiver under a simulated or recorded NMEA trajectory.

Supported Platforms

- Linux
- Windows XP, Windows 7

EXCELLENCE

IN

GPS

PRODUCTS

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SERVICES

For additional information on the NAVSYS GNSS Signal Architect and other NAVSYS products, please contact:

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