SatGen

GNSS Simulator Software
CREATE artificial GNSS RF data
SIMULATE any dynamic, time or position
REPLAY GPS, Galileo, GLONASS and BeiDou RF data

SatGen v3 is the most cost effective multi-constellation Global Navigation Satellite System (GNSS) simulation software available.

If you are testing and developing GPS, Galileo, GLONASS, BeiDou receivers or applications, then you'll find **SatGen v3** makes your job easier, quicker and more effective.

What is SatGen v3?

SatGen v3 is **RACELOGIC**'s GNSS scenario generation software which enables you to create a data file, based on a user-generated trajectory file that can be replayed on a **LabSat GNSS Simulator**. With **SatGen v3** you can generate a scenario to simulate a test anywhere in the world, with position, route, speed, date and time all defined by the user.

SatGen v3 - Predefined scenario example

Why use SatGen v3 software?

You might be based in Europe, but your GPS devices will be deployed throughout the world. With **SatGen v3** you can create a test scenario based on a user-generated trajectory file for virtually any location, including hostile areas for which live-sky field testing might be impossible. This allows you to verify that your GPS equipment performs as required, in a variety of locations that may be geographically remote from your facility.

Of course, **LabSat** can record and replay live data, but creating an artificial scenario allows you to precisely control the data content, and create a 'gold standard' file for carrying out true comparisons between receivers. From your bench you can try different acceleration levels, crossing different time zones, the equator, leap second roll-overs and many hard to replicate tests.
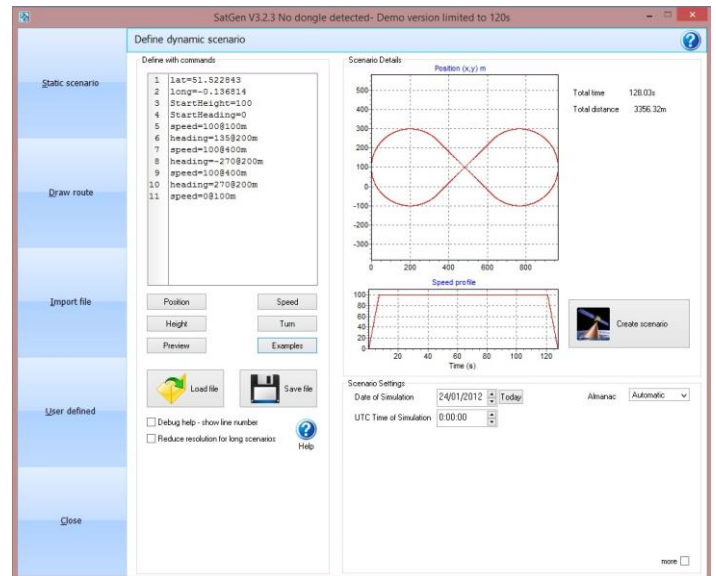
Real Time Output

The **SatGen Real Time** output allows for a scenario to be output directly from the software into a specially modified **LabSat**, which in turn then replays the data into the device under test with up to one second latency. The output signal can be precisely synchronised with the current time or it can have a past or future timestamp allowing for total flexibility when developing GNSS devices in a laboratory environment.

What constellations can I create?

Single Constellation - Create single constellation scenario files for GPS L1, Galileo E1, GLONASS L1 or BeiDou B1

Dual Constellation - Create dual or single constellation scenario files for GPS L1, Galileo E1, GLONASS L1 or BeiDou B1

Triple Constellation - Create triple, dual or single constellation scenario files for GPS L1, Galileo E1, GLONASS L1 or BeiDou B1

Wideband - Create **Wideband** files for GPS: L1 C/A, M[1], P. L2, C, P, M[1]. L5, I, Q. Galileo E1, E5a, E5b, E6. GLONASS: L1OF, L2OF. BeiDou: B1I, B2I, B3I.

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How does it work?

Creating a scenario with **SatGen v3** is easy. A relatively complicated route can be defined in just a few clicks, leaving the software to automatically generate a fully realistic scenario. If you have an NMEA or KML file of your route, you can simply import this directly into the software. Alternatively you can create a scenario from scratch, either by creating a route in Google Maps, or by building a unique trajectory using simple user defined commands with the **SatGen v3** software.
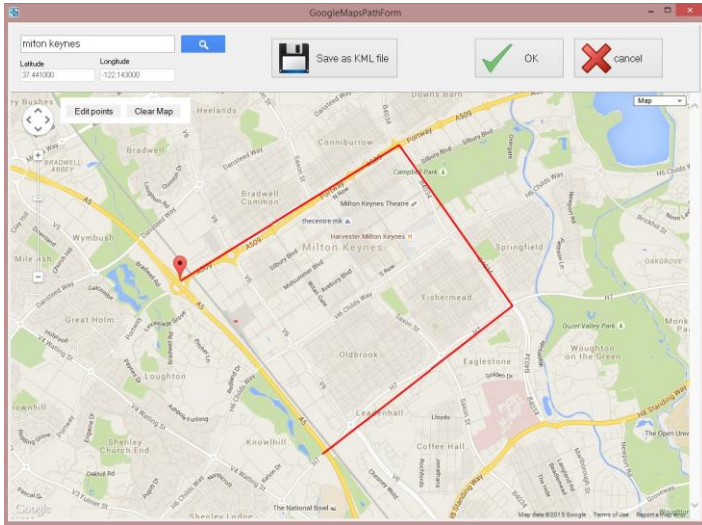

SatGen v3 - Draw Route screen

Once the route and velocity profile have been defined, the software will use this data to create a **SatGen** scenario file which can be replayed on a **LabSat**, **LabSat 2**, **LabSat 3** or **LabSat 3 Wideband** simulator into a GNSS device under test (DUT). **LabSat** is able to play the scenario file with consistency and repeatability as part of a testing regime.

Scenario Generation Process

SatGen v3 software can also import data in a variety of formats including: Google Earth '.kml', **RACELOGIC** '.vbo' and User Defined profiles.

The User Defined command file feature allows for any dynamic, time or location to be defined. So for those complex trajectory or flight profiles then **SatGen v3** can easily create them. To make the process even easier a number of predefined examples are included: acceleration, circle, square, figure-of-eight, airport take-off, North Pole circle, South Pole circle, equator circle and circle around a set point. These examples can easily be modified to create more complex routines.

Scenario Creation Diagram
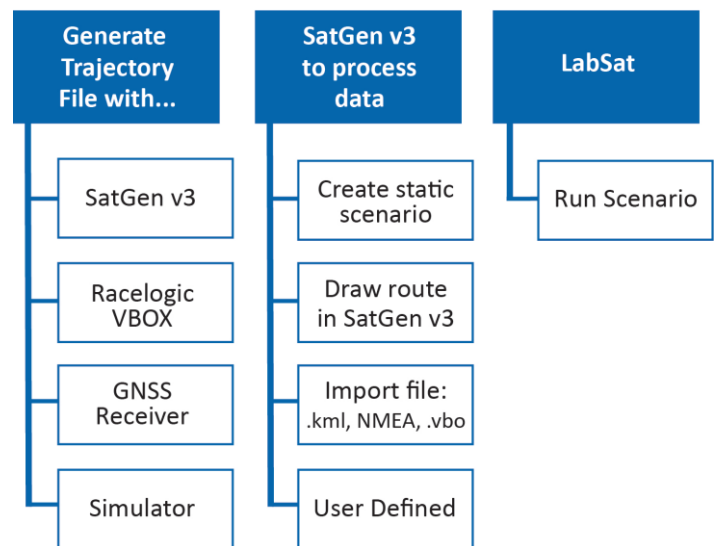
[1] L1M, L2M noise created only [2]

Technical Specifications

Constellation all variants	GPS/Galileo/GLONASS/BeiDou
Data Format	IF, I, Q, I&Q
Quantisation	1-bit, 2-bit, 3-bit
File Format	.bin / .ls2 / .ls3 / .LS3W
File Size / Duration	Unlimited
Almanac File Format	.ALM / .AGL
NMEA Input File Format	$GGA
Operating System	Win 7 64-bit, Win 8 64-bit, Win 10 64-bit