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# TESEO-SUITE software Assisted GNSS technology

## Quick Training Guide

Feb 2021



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2	ST-AGNSS panel
3	Predictive AGNSS panel
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Standard GNSS receivers only use data from satellites and require 30 to 32 seconds to evaluate the first position from the moment power is turned on (Time To First Fix – TTFF).

Assisted-GNSS (AGNSS) is a technology which speeds-up the TTFF, thanks to extra data provided to the GNSS

Teseo III and Teseo modules support three Assisted GNSS technologies:

- Self-Trained Assisted GNSS
- Predictive Assisted GNSS
- Real-Time Assisted GNSS



# Assisted GNSS technology

Self-trained	Predicted	Real-time
ST-AGNSS predicts satellite data based on previous observation of satellite broadcasted data.	P-AGNSS predicts satellite data based on data downloaded by an assistance server	RT-AGNSS uses real-time satellite data downloaded by an assistance server
No internet connection needed	Internet connection <b>NEEDED</b> (10 ~ 16 KB data for every download based on constellations)	Internet connection <b>NEEDED</b> (16 KB data for every 4 hours based on constellations)
<b>5 to 6 days prediction</b>	<b>14-day prediction</b>	<b>Continuous /Real Time</b>
<b>TTFF ~ 1 - 4 s</b>	<b>TTFF ~ 1 - 4s</b>	<b>TTFF: 1 s</b>

Management over proprietary NMEA commands  
Subject to agreement on service-level

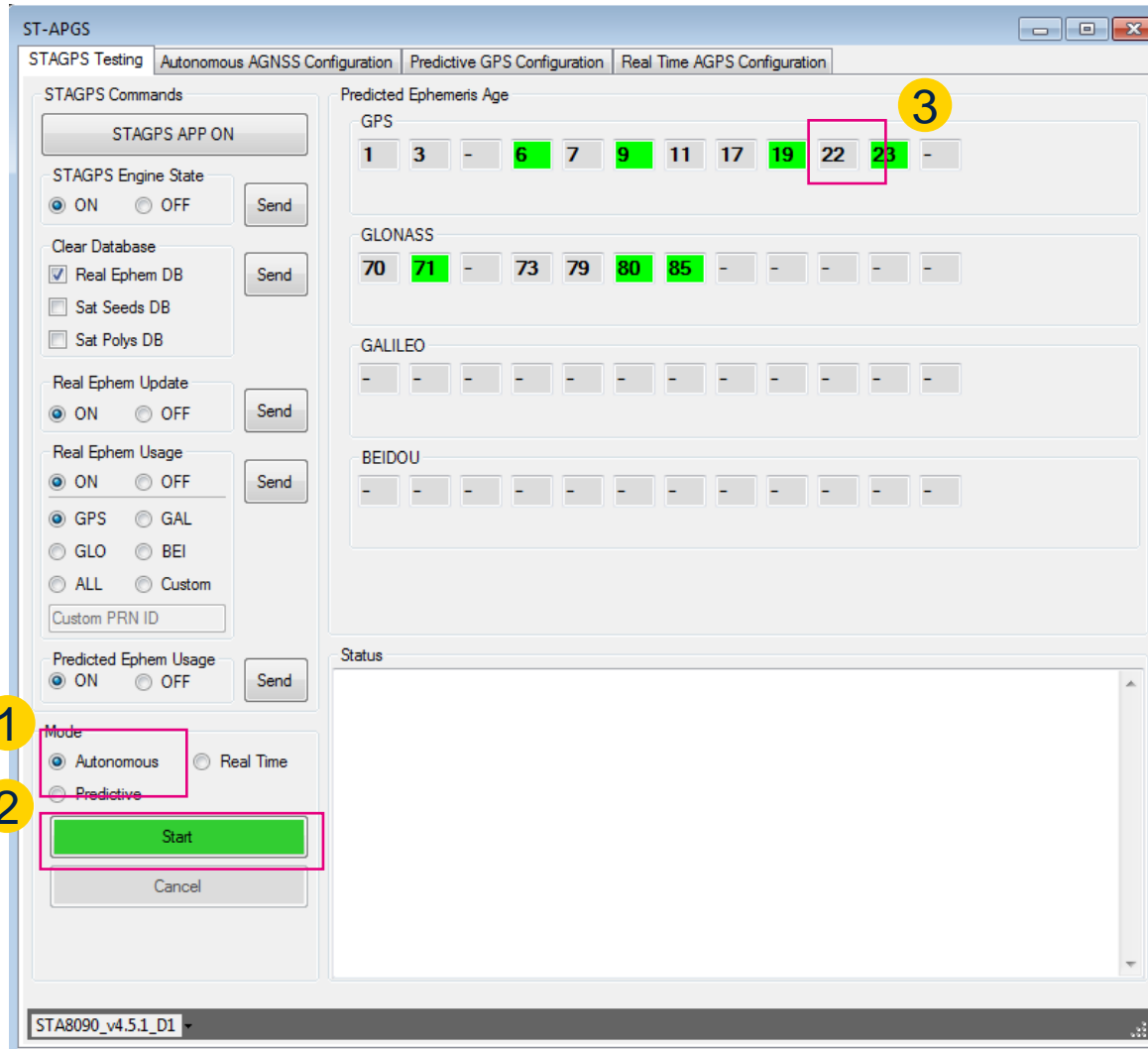


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# ST-AGNSS panel



- 1 Switch on the Autonomous Mode
- 2 Enable ST-AGPS monitoring in TESEO-SUITE
- 3 Prediction state for each satellites  
Color describes the prediction state of each satellite:

Grey	No prediction available for the satellite
Green	Fresh prediction available for the satellite
Yellow	Old prediction available for the satellite
Red	Very old prediction available for the satellite

**NB:** the STMAGPS message has to be enabled in the message list



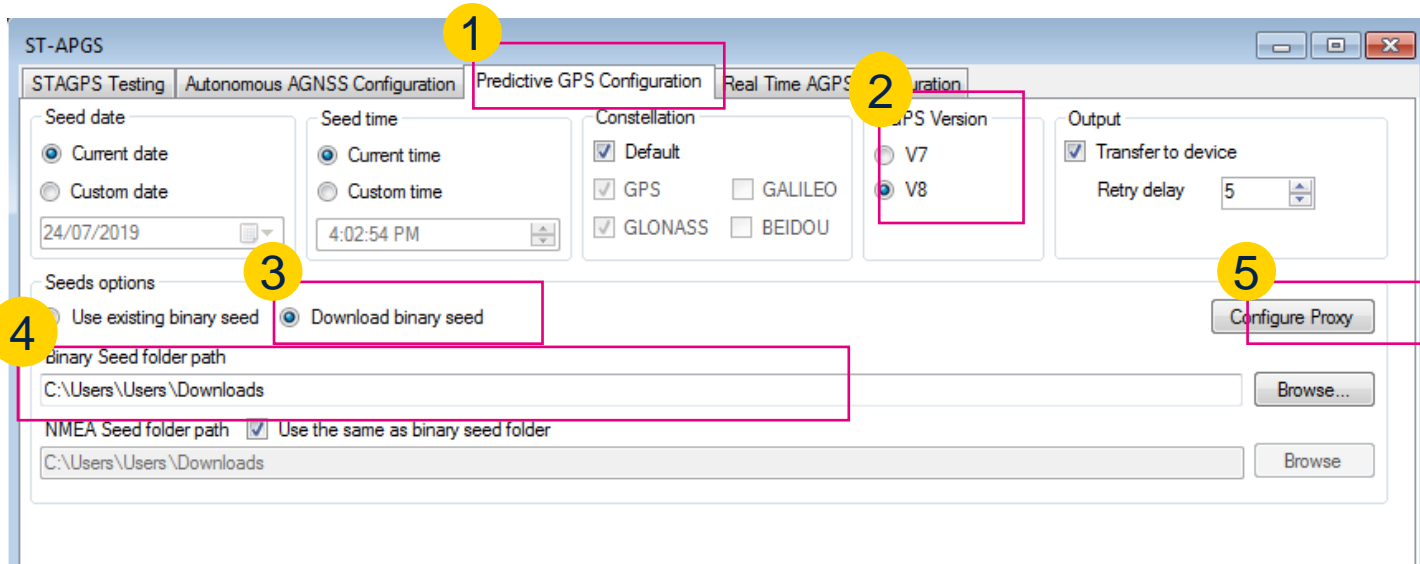
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# Predictive AGNSS configuration



- 1 Go to the **Predictive Tab**
- 2 Switch on Version **V8**
- 3 Switch on '**Download binary seed**'
- 4 Define where to save the seed-file
- 5 Configure the http-proxy if needed



# Predictive AGNSS running

ST-AGPS

STAGPS Testing Autonomous AGNSS Configuration Predictive GPS Configuration Real Time AGPS Configuration

STAGPS Commands

STAGPS APP OFF

STAGPS Engine State

ON  OFF Send

Clear Database

Real Ephem DB Send

Sat Seeds DB

Sat Polys DB

Real Ephem Update

ON  OFF Send

Real Ephem Usage

ON  OFF Send

GPS  GAL

GLO  BEI

ALL  Custom

Custom PRN ID

Predicted Ephem Usage

ON  OFF Send

Mode

Autonomous  Real Time

Predictive

Start

Cancel

Predicted Ephemeris Age

GPS

2 - 5 6 7 9 - 23 28 30 - -

GLONASS

- 71 72 73 74 75 81 - - - -

GALILEO

- - - - - - - - - -

BEIDOU

- - - - - - - - - -

Status

STA8090\_v4.5.1\_D1: ST-AGPS application is enabled  
STA8090\_v4.5.1\_D1: ST-AGPS application is enabled

Start task: Predictive  
Use current date and current time: 22/11/2019 14:26:47

Enter state: Download seed  
\*\*\*\*\*  
Request password for download.  
Password for RT GPS assistance received.  
Server request in progress .....

Binary seed downloaded.

Enter state: Convert seed  
\*\*\*\*\*  
Seed file found.  
Start conversion from binary to NMEA.  
Binary seed converted to NMEA script with success.

Enter state: Send seed  
\*\*\*\*\*  
Parse NMEA script file: C:\TEMP\NMEAseed\_GPS\_GLO\_\_1258468007.nmea

Start sending NMEA sentences.

Send command:  
\$STMSTAGPSSEEDBEGIN,1,18,0,19,-257,-  
16973824,15,0,33,18,0,000400258116E8258116E80000000258116E80723A6\*70

- 1 Switch on the predictive AGNSS mode
- 2 Select the Start button to trigger the real-time process
- 3 Monitor the action in progress
- 4 Seed packets are sent to Teseo III GNSS solution

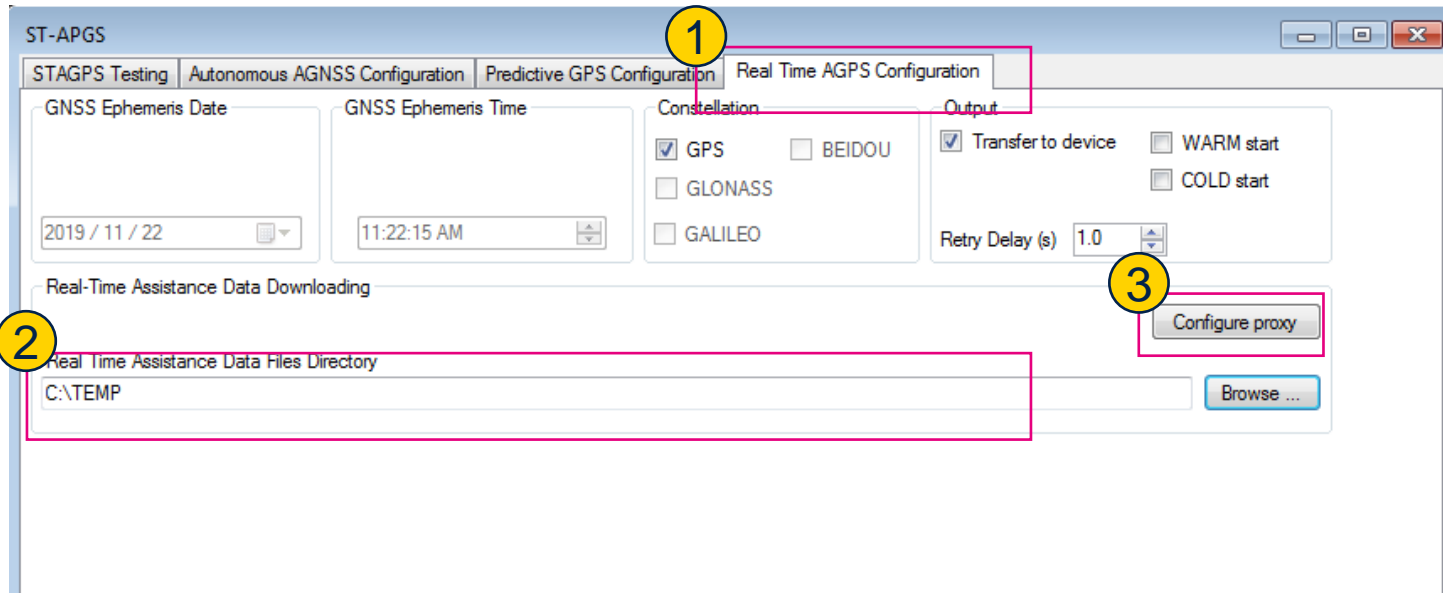


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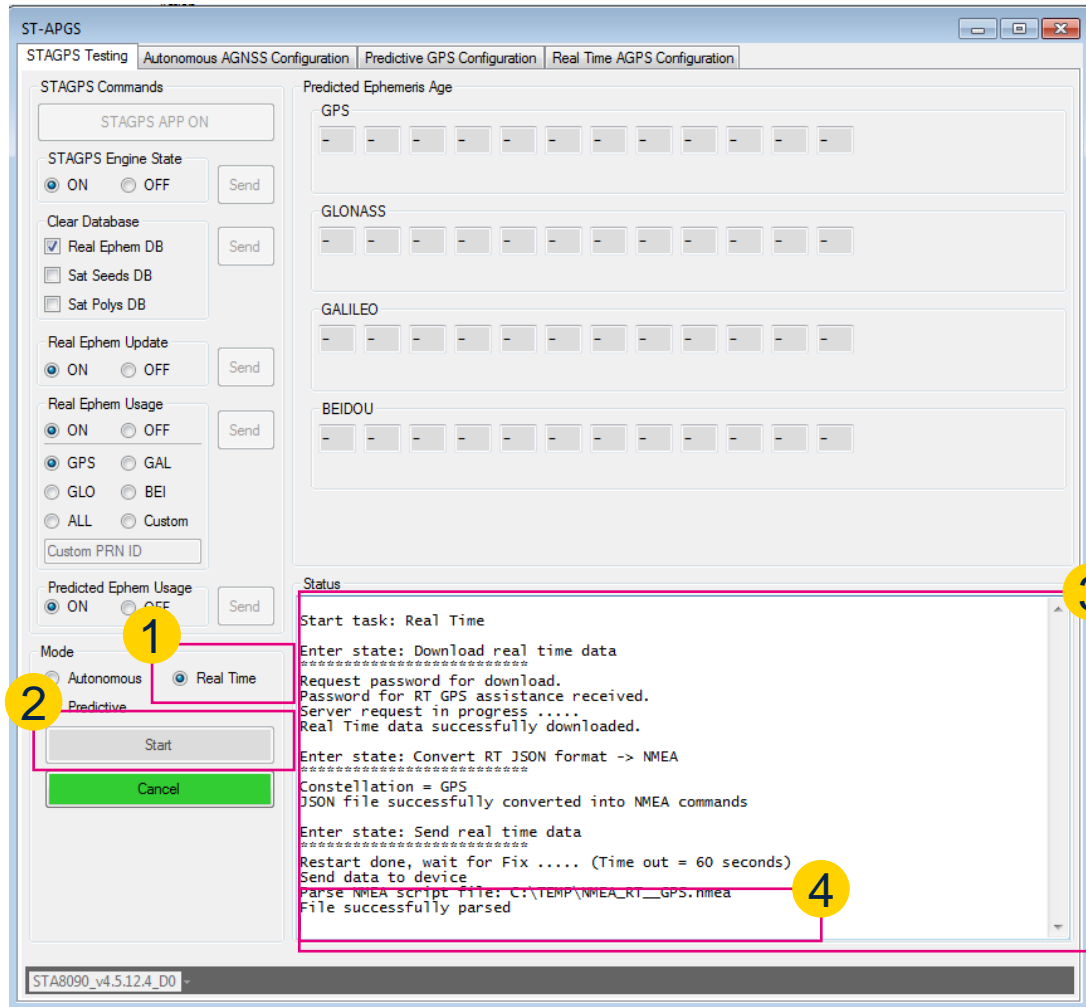
# Real-time AGNSS configuration



- 1 Go to the **Real-Time Tab**
- 2 Define where to save the RT-file
- 3 Configure the http-proxy if needed



# Real-time AGNSS running



- 1 Switch on the Real-Time AGNSS mode
- 2 Select the Start button to trigger the real-time process
- 3 Monitor the action in progress
- 4 Operation completed



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# Documents & related resources available on st.com

## Teseo III: Webpage

- Data-sheet of all PNs

## Teseo Modules: Webpage

- Data-sheet of all PNs

## Teseo Suite: Webpage

- Datasheet
- Install program

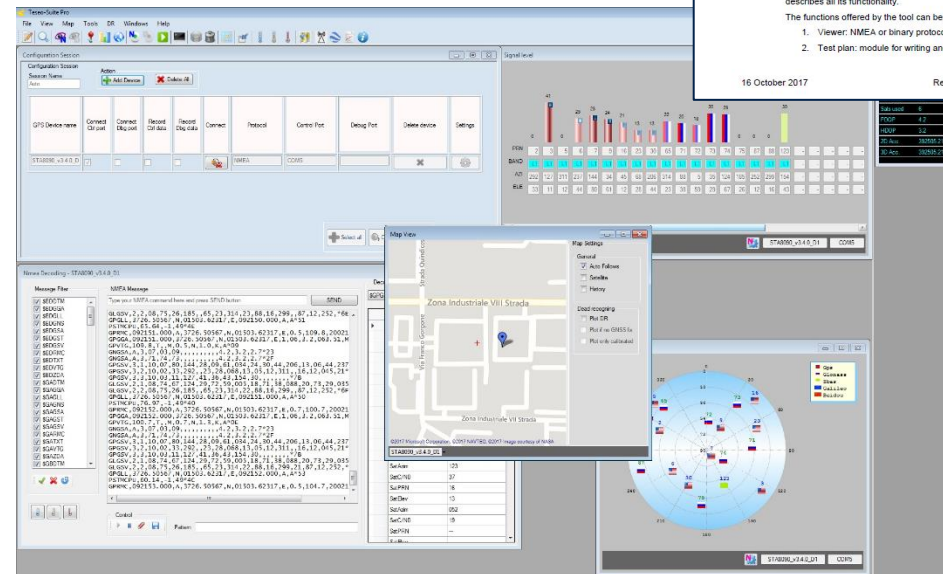
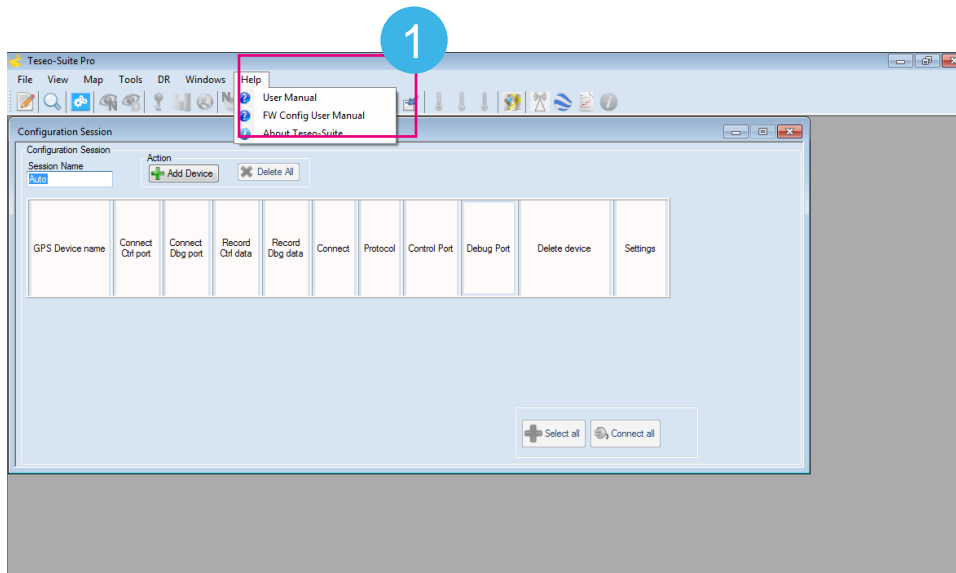


The screenshot displays two overlapping webpage sections from ST.com. The top section is titled "GNSS ICs" and describes the Teseo III family of Global Navigation Satellite System (GNSS) ICs. It highlights features such as high positioning accuracy, indoor sensitivity, and support for multiple GNSS systems (BeiDou, Galileo, GLONASS, GPS, and QZSS). It also mentions that Teseo III offers reduced power consumption and carrier-phase tracking for higher accuracy. The bottom section is titled "EVB-T3" and describes the Teseo III evaluation board. It notes that the board is a complete standalone evaluation platform for the Teseo III GNSS ST solution, featuring a high-performance ARM946 microprocessor with dedicated SRAM and several serial communication interfaces (USB, SPI, PC, UART, and CAN). Key features listed include support for ST Teseo III GNSS platform, multiconstellation GNSS (GPS, Galileo, Glonass, Beidou, QZSS), USB Power Supply and battery charge, internal battery for standalone usage, ON/OFF and Reset buttons, and NMEA over.



# Teseo suite – extra features

- 1 Select the Help menu to access the user manual
- 2 The user manual includes all the information needed







# GNSS solution development TESEO-SUITE

- Get started on your GNSS solution with ST's Teseo III and Teseo Module using TESEO-SUITE software to explore all the available features.

