NASA Software
General Mission Analysis Tool

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General Mission Analysis Tool

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From Wikipedia, the free encyclopedia

General Mission Analysis Tool (GMAT) is open-source space mission analysis software developed by NASA and private industry.[2]

It has been used for several missions, including LCROSS, the Lunar Reconnaissance Orbiter, OSIRIS-REx, the Magnetospheric Multiscale Mission, and the Transiting Exoplanet Survey Satellite (TESS) mission.[2][3]

GMAT is an open-source alternative to software like Systems Tool Kit and FreeFlyer.

General Mission Analysis Tool

Initial release	2007[1]
Stable release	R2022a / January 2023; 1 year ago
Repository	sourceforge.net/projects/gmat/files/GMAT/
Written in	C++
Operating system	Microsoft Windows, Linux, macOS
Type	Technical computing
License	Apache License 2.0
Website	GMAT Wiki

References [edit]

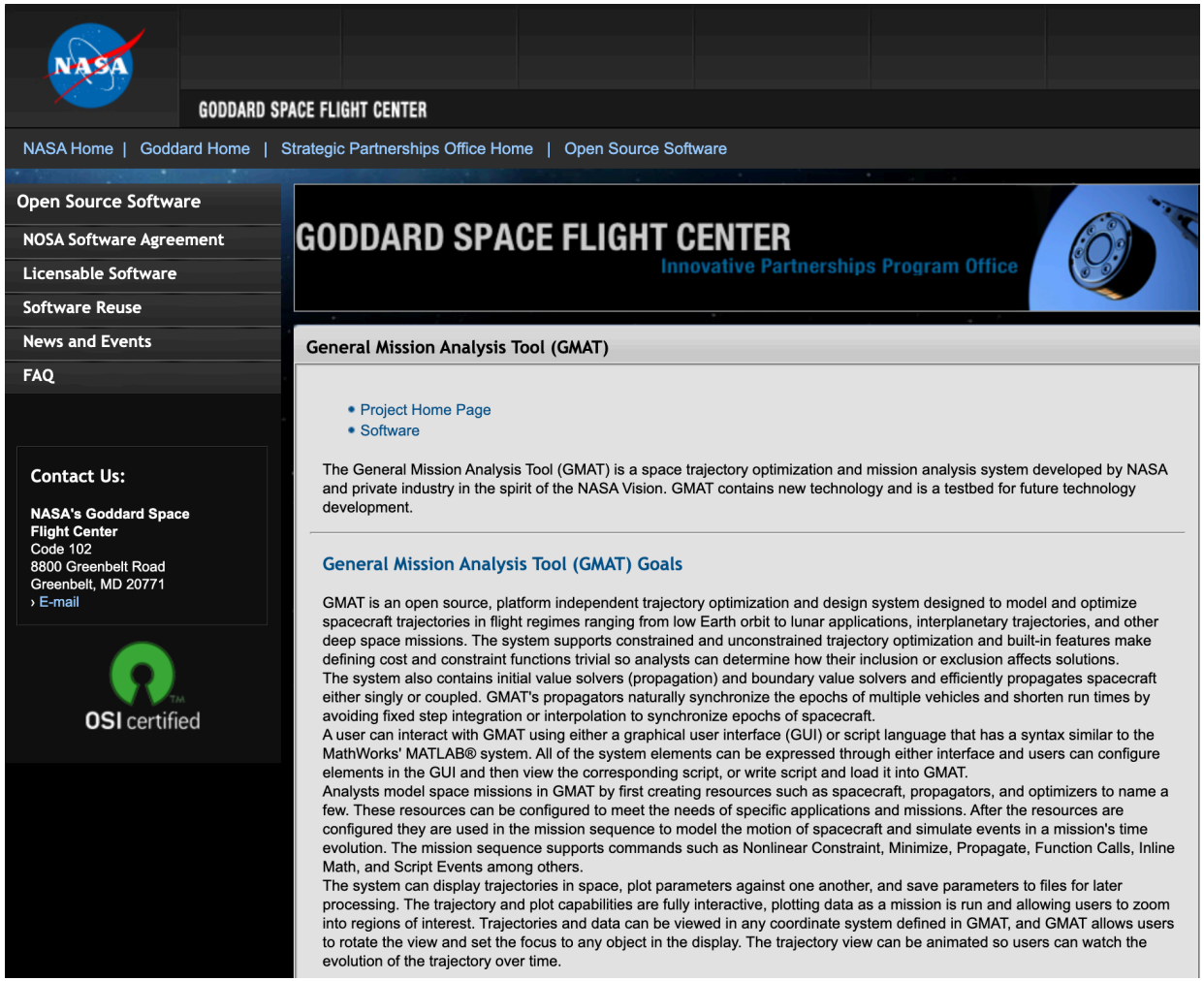
1. ^ Hughes, Steven P.; Conway, Darrel J.; Parker, Joel (2017). *Using the General Mission Analysis Tool (GMAT)* (PDF). AAS Guidance and Control Conference.
2. ^ a b Hughes, Steven P.; Qureshi, Rizwan H.; Cooley, Steven D.; Parker, Joel J. (2014). *Verification and Validation of the General Mission Analysis Tool (GMAT)* (PDF). AIAA/AAS Astrodynamics Specialist Conference.
3. ^ "GMAT Wiki - Overview". 5 January 2022. Retrieved 5 January 2022.

External links [edit]

- GMAT Wiki
- GMAT Download (SourceForge)
- GMAT channel on YouTube

Categories: Aerospace engineering | 3D graphics software | Astronomy software | Mathematical software | Physics software

GMAT Splash Page



GMAT Overview

Overview

The General Mission Analysis Tool (GMAT) is the worlds only enterprise, multi-mission, open source software system for space mission design, optimization, and navigation. The system supports missions in flight regimes ranging from low Earth orbit to lunar, libration point, and deep space missions. GMAT is developed by a team of NASA, private industry, public, and private contributors and is used for real-world mission support, engineering studies, as a tool for education, and public engagement.GMAT contains models of real world objects such as spacecraft and thrusters, and analysis "objects" such as propagators, plots, and reports. These objects are used in a mission sequence in which the user employs commands supported by the system to model mission events and perform estimation.For a complete list of new features, compatibility changes, and bug fixes, see the Release Notes. Below are just some of the new capabilities contained in this release. Production quality orbit determination (Operational Certification expected in November, 2016)Code 500 ephemeris propagatorSTK ephemeris file outputWrite command to save GMAT configurations during executionInclude macro to load GMAT configurations from external sources during executionMany new built in math functions and parameters130 pages of new user documentation

Software Details

Category	Design and Integration Tools
Reference Number	GSC-17177-1
Release Type	Open Source
Operating System	

Contact Us About This Technology

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GMAT Contact

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GMAT Goals

GMAT is an open source, platform independent trajectory optimization and design system

GMAT Goals

GMAT is an open source, platform independent trajectory optimization and design system designed to model and optimize spacecraft trajectories in flight regimes ranging from low Earth orbit to lunar applications, interplanetary trajectories, and other deep space missions.

Bertrand's Theorem

No Bertrand Theorem

Professional Societies: Computational Mechanics

Bibliography I

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