



At A Glance

AutoFDS provides nearly autonomous flight dynamics product generation for missions. This functionality improves quality, enables new missions such as formation flying, and reduces operations costs.

Features

- XML interface
- GSMEC-Compliant
- Collaborative problem solving
- Remote access

Benefits

- Enables knowledge capture and reuse across missions
- Provides single interface to flight dynamics COTS/GOTS software
- Provides a standard set of flight dynamics products for current and future missions
- Lowers mission operations costs

GMSEC Autonomous Flight Dynamics System (AutoFDS)

Summary

AutoFDS provides a nearly autonomous flight dynamics system that encapsulates all flight dynamics functionality including product delivery. An open standard XML interface provides access to orbit determination, attitude determination, orbit maneuvers, attitude maneuvers, and calibration. AutoFDS also automates product generation, quality assurance, and delivery to end users. System design enables multiple users simultaneous remote access to products and functions thus facilitating collaboration among peers for quick diagnosis and resolution of problems. An autonomous watchdog function continuously monitors spacecraft health and safety and notifies the appropriate personnel of any anomalies for quick resolution.

The screenshot displays the AUTO-FDS web interface with the following components:

- Navigation:** auto FDS, monitor, products, scheduling, administration, links
- Mission Data Table:**

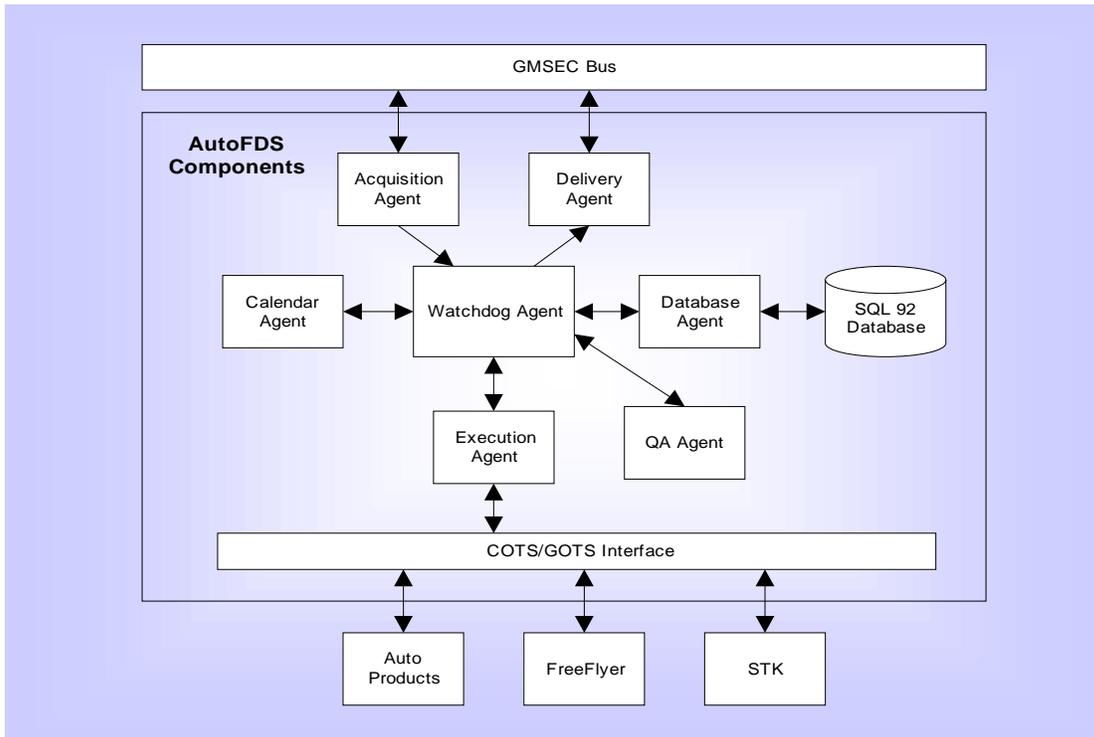
mission	event name	process ID	scheduled run date	next run date	mission	products	date required	date posted	next update
TRMM	ACQDLY	2596	06/12/03 12:44		TRMM	Advance Maneuver Plan	06/10/03 17:00	06/10/03 17:47	
TRMM	EPVDLY	1956	06/12/03 12:44		TRMM	Attitude History File Report	06/12/03 13:00	06/12/03 12:30	
TRMM	FileDelete	2636	06/12/03 00:00		TRMM	Closed Database Backup	06/09/03 04:00		
TRMM	HGUAV_DAILY	2068	06/12/03 12:56		TRMM	Daily GN Acqdata	06/12/03 12:30	06/12/03 13:09	
TRMM	HGUAV_WKLY	2328	06/12/03 11:08		TRMM	Daily JPL Acqdata	06/12/03 13:30	06/12/03 13:11	
TRMM	LINSUM	2172	06/12/03 11:30		TRMM	Daily Maneuver Plan	06/12/03 13:30	06/12/03 13:46	
TRMM	Maneuver_Plan_ADV	472	06/10/03 16:00		TRMM	Daily SN Acqdata	06/12/03 12:30	06/12/03 13:09	
TRMM	Maneuver_Plan_DLY	2344	06/12/03 12:44		TRMM	Extended Precisions Vectors - Daily	06/12/03 13:30	06/12/03 13:47	
TRMM	OrbitNum	2188	06/12/03 12:44		TRMM	High Gain Ant Pred TDE/TDW - Daily	06/12/03 13:30	06/12/03 13:48	
TRMM	PSTDLY	760	06/12/03 12:56						
TRMM	PSTWLY	2188	06/12/03 11:30						
TRMM	SBADLY	2460	06/12/03 12:56						
TRMM	SBAWLY	784	06/12/03 13:00						
- Graphs:**
 - TRMM Mission Operations Center: Graph showing altitude (km) vs. epoch (12 THU JUN 2003).
 - SystemYYYY_D0Y_HMMSS: Table showing epoch data for 2003 06 12 03.
- 3D Models:**
 - World map showing orbital paths and ground tracks.
 - 3D Earth model showing the satellite's orbit.

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AutoFDS Architecture



AutoFDS reduces mission operations costs by automating flight dynamics functions.

Mission Benefits

- Lowers operations costs by automating flight dynamics functions.
- “Management by exception” paradigm enables quick anomaly response.
- Remote access to heads-up display enables instant access to mission status.
- Enables collaboration for quick diagnosis of problems from the MOC or remote locations.
- Industry standard interfaces maximize reuse from mission to mission.
- Maximizes COTS usage while enabling mission specific requirements to be implemented.
- 24x7 watchdog for spacecraft anomalies related to flight dynamics.

