

MSR: Multi-Mission Scheduling and Reporting Tool

Gian Piero Izzo

Alia Space Systems
via Lunati, 10 – IT00044 Frascati (Rome) Italy
gianpieroizzo@alia-space.com

Abstract

MSR is a centralized system developed in order to automate both activities related to spacecraft (S/C) operations and ground segment (G/S) support: daily plans preparation, electronic logbook maintenance, periodic reports compilation, project documentation organization and versioning.

MSR Overview

MSR is a centralized system developed in order to automate both activities related to spacecraft (S/C) operations support and ground segment (G/S): daily plans preparation, electronic logbook maintenance, periodic reports compilation, project documentation organization and versioning.

An automatic reminder tool for task execution is provided. The system is completely server-based, relying on a series of open-source software packages:

Apache Web Server, PHP engine, MYSQL RDBMS, SDK. The server is developed in order to have parallel access to multiple RDBMS, each one collecting data belonging to different missions.

The user interface is strictly multi-mission, where each mission can itself be a multi-satellite one, according to recent ESA orientation in ground segment software development.

Users only need a web browser in order to utilize the tool. Different HTML pages are maintained for each mission fully customizable by the system configurator. For multi-satellite missions users can display info about all satellites of the mission switching on a tab on the same web page. "Satellites of pertinence" subsets can also be defined to restrict user access only to specific satellites of the mission. Multiple login profiles exist for both the S/C and the G/S (planner, operator, maintainer, designer, or simply guest), with different functionalities: designer is devoted to user and mission management; maintainer to DB maintenance operations; planner, responsible to import/create mission plans; operator responsible to perform planned operations

and generate reports.

The system is able to automate report generation, providing mechanisms to associate user written templates to specific actions. Templates will then be filled with data incoming from the operator or directly loaded from the mission archives, through dedicated drivers.

PDF and OpenOffice documents can be automatically generated.

A shared file area, containing mission documentation and generated reports is always available through the same web interface, and each operation can be linked to specific documents.

An integrated messaging framework is also provided for each mission.

Dedicated interfaces for SCC (Spacecraft Control Centers), FDS (Flight Dynamics System), and other actors can be configured for each mission.

Besides, it is simple to perform system customization, since additional mission-specific functionalities can be freely added upon need.