IMPLEMENTING LUCENE SEARCH TOOLS FOR SCHEDULING AND PLANNING SOFTWARE

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As NASA missions are executed on larger scales, the scheduling component of those missions has become more complicated and time-consuming. The Ensemble team develops software to assist planners in the creation and maintenance of plans (also known as schedules). This software is known as the Scheduling and Planning Interface for Exploration (SPIFe). The plans created by this application enumerate all the actions required of a rover or astronaut over a given time period. During the Mars Exploration Rover (MER), and Phoenix missions, scientists found that these plans can become lengthy and unwieldy. As a result, a new search interface using Apache Lucene, a text based indexing search engine, was suggested. By analyzing current search paradigms and the capabilities of the Lucene, an effective and powerful user interface has been developed. The Lucene Model is ideal for SPIFe because each plan element has relatively low number of attributes that must be indexed and this facilitates incredibly fast look-up speeds. In addition, the integration of Lucene will provide a template for index-based searches in various areas of the Ensemble software package. In the next two years, this feature will help planners for the International Space Stations (ISS) and the Mars Science Laboratory (MSL) mission.