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DESIGN AND SETUP OF A WORKING ENVIRONMENT FOR TELEMETRY ANALYSIS OF THE CHILEAN SATELLITE FASAT CHARLIE: A CASE STUDY OF FUEL TANK TEMPERATURE

Abstract

Since December, 2011, the Chilean satellite FASat Charlie has been operating, generating a big amount of telemetry related to image data and health status, which is saved on LTO tapes. The recovery procedure of telemetry for this architecture is slow and difficult to manage. In order to optimize it, it was necessary to setup a recovery process for all the telemetry recorded since the satellite started its operations, migrating all the data to an external HDD. After this procedure, a Virtual Machine was configured as a mirror of the main server where all the operation data is treated, in order to process the telemetry packets without disturbing the main operation. With these processed telemetry, a database was created and periodically updated with all the telemetry from the satellite. Finally, using different scripts written on Python, this data was selected, processed, analysed and plotted. For this case study, the telemetry related to the temperature of the fuel tank was selected, as an example of this working environment focused on the analysis of these components.