Data archiving and serving system implementation in CLEP's GRAS Core System

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The Ground Research & Applications System(GRAS) is one of the five systems of China's Lunar Exploration Project(CLEP), it is responsible for data acquisition, processing, management and application, and it is also the operation control center during satellite in-orbit and payload operation management. Chang'E-1, Chang'E-2 and Chang'E-3 have collected abundant lunar exploration data. The aim of this work is to present the implementation of data archiving and Serving in CLEP's GRAS Core System software. This first approach provides a client side API and server side software allowing the creation of a simplified version of CLEPDB data archiving software, and implements all required elements to complete data archiving flow from data acquisition until its persistent storage technology. The client side includes all necessary components that run on devices that acquire or produce data, distributing and streaming to configure remote archiving servers. The server side comprises an archiving service that stores into PDS files all received data. The archiving solution aims at storing data coming for the Data Acquisition Subsystem, the Operation Management Subsystem, the Data Preprocessing Subsystem and the Scientific Application & Research Subsystem. The serving solution aims at serving data for the various business systems, scientific researchers and public users. The data-driven and component clustering methods was adopted in this system, the former is used to solve real-time data archiving and data persistence services; the latter is used to keep the continuous supporting ability of archive and service to new data from Chang'E Mission. Meanwhile, it can save software development cost as well.