Mission Data Server  
[11.0 Ground Data Systems and Mission Operations - NASA](https://www.nasa.gov/smallsat-institute/sst-soa/ground-data-systems-and-mission-operations/)  
**Ground Data Systems and Mission Operations**

[Introduction to mission data system - NASA Technical Reports Server (NTRS)](https://ntrs.nasa.gov/citations/20060039818)  
Introduction to mission data system  
  
summary :  
A Mission Data Server would be a physical/software unit onboard a spacecraft or space station that centralizes data management: receiving telemetry and payload data, short-term storage, pre-processing, command dispatching, and routing data to Earth or other systems.

In space, such a server must be radiation-hardened, energy-efficient, tolerant to communication interruptions, and capable of autonomous software updates (self-healing, rollback).

The purpose of having it onboard is to reduce the amount of raw data downlinked to Earth (by processing locally), enable real-time decision-making based on experiment outputs, and maintain service continuity during ground communication outages.