

The State of the PDS4 Information Model. J. S. Hughes¹ and D.J. Crichton², ¹Jet Propulsion Laboratory, 4800 Oak Grove Dr., Pasadena, CA 91109, USA, John.S.Hughes@jpl.nasa.gov, ²Jet Propulsion Laboratory, 4800 Oak Grove Dr., Pasadena, CA 91109, USA, Daniel.J.Crichton@jpl.nasa.gov.

Introduction: The PDS4 Information Model¹ (IM) Version 1.12.0.0, Figure 1, will be released for PDS4 System Integration and Test on March 29th, 2019. The IM remains true to its foundational principles and the derived standards have become the de-facto data archiving standards for the international planetary science community. Designed to be extensible the IM’s Common dictionary is currently the parent of 12 discipline and 16 mission level dictionaries, each consistent with the core dictionary. Future discipline and mission dictionaries are a certainty.

This release includes several Change Control Board (CCB) approved modifications to the IM Common dictionary. Their minimal impact on the system suggests that the core dictionary remains relatively stable. In addition, the primary tool for the development of Local Data Dictionaries (LDDs), LDDTool, has been modified to improve validation and support configuration control.

The significant number of new LDDs proves the effectiveness of multi-level steward-based governance. This scheme is allowing the IM to scale to meet the needs of a multi-discipline community and improve interoperability between the distributed digital repositories within the community. An LDD development “industry” has emerged and with it the need for better processes for LDD development, and configuration and version control. In spite of these growing pains the fundamental principles have held as new dictionary stewards see the benefits of well-designed dictionaries consistent with the Common dictionary. The PDS4 Information Architecture – Figure 2, anchored by the IM, is a world-class knowledge-base and enables a trusted digital repository for the Planetary Science Community.

This presentation will provided additional detailed information. In addition, aspects of the IM only partially leveraged will be highlighted, including the ability for the model to drive the configuration of PDS4 software and services, the untapped wealth of semantic information available in the model, and potential support for data analytics and data science.

References:

[1] PDS4 Information Model Specification Team, *PDS4 Information Model Specification, Version 1.12.0.0*, (2019), https://pds.jpl.nasa.gov/datastandards/documents/im/current/index_1C00.html.

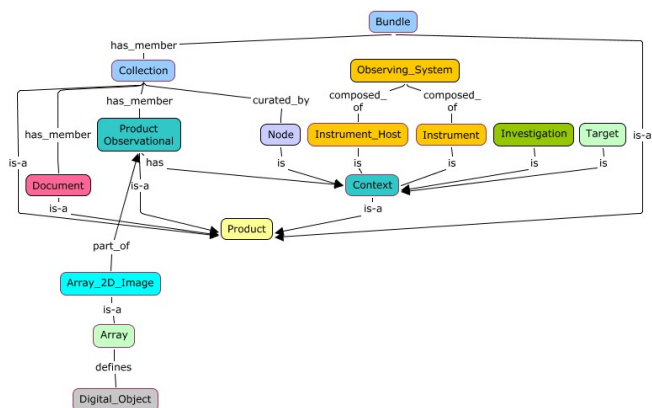


Figure 1 - PDS4 Information Model - Concept Map

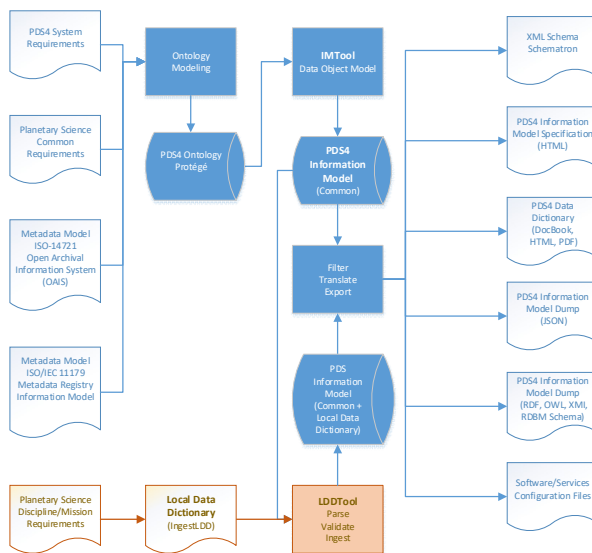


Figure 2 - Information Architecture and Flow