

Extant Interoperability across the Solar and Planetary Science Communities

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Abstract

1. The Planetary Data System's PDS4 Reference Information System Architecture [1, 2, 3] is comprised of two components: an information architecture and a software architecture. The information architecture enables interoperability across the diverse disciplines of the Planetary Science community and overlapping elements of the Heliophysics and Astrophysics communities. The PDS4 Information Model, the core component of the information architecture, enables interoperability by means of an integrated set of domain ontologies and common vocabularies. The software architecture defines the service and application layers that support core functions across a set of federated digital repositories, including ingest, validate, locate, search, and retrieve. Higher level software layers accommodate workflow and analytical processing. As illustrated in Figure 1 the information model is intrinsically involved in the creation and validation of data products and the configuration of the software services. The model also institutes governance over data and metadata at the common, discipline, and mission levels. Efforts are underway to look at how the PDS4 reference information system architecture can be used to define a more generalized reference architecture for science data archives.

This presentation will provide an overview of the information system architecture, and how it is being applied across digital repositories. Efforts to leverage and enhance these components will also be identified.

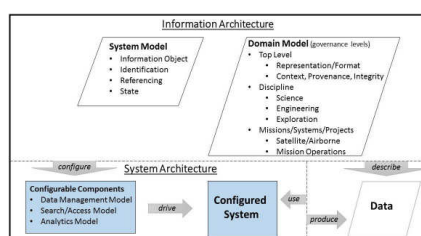


Figure 1: Information System Architecture [3].

Acknowledgements

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References

- [1] System Design Working Group (SDWG), PDS4 System Architecture Specification, Version 1.3, Jet Propulsion Laboratory, September 1, 2013.
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- [3] Crichton, D., Hughes, J.S., Hardman, S., Law, E., Beebe, R., Morgan, T., Grayzeck, E.: A Scalable Planetary Science Information Architecture for Big Science Data. IEEE 10th International Conference on e-Science, October 2014.