

Build 2c+ RFA List

RFA #	Name	Topic	Problem	Recommendation	Disposition	Comments	PLAN	RESOLUTION
RFA_Build2a_024	A'Hearn	Why	Lots of people question why we have to move to XML	Develop a coherent, PDS-wide pitch on why we are changing PDS. My personal opinion is that this should address the other problems (not keyword vs. xml) of PDS that need to be corrected and then go on to argue that we should not use what is in the IT world an obsolete approach. Maybe pitching also the ultimate ability to better tie to PSA and VO. Some other pitch may work better but whatever we develop we need to do it coherently and consistently across the whole of PDS. Should use what we have learned from MAVEN and LADEE about what benefits they are finding.	DELIVERED	Update planned to http://pds.nasa.gov/pds4 website to include marketing information for PDS4 as part of build 2b deployment. Beebe is leading an effort to improve the information and make it accessible from the discipline nodes.		See comments and PDS4 website.
RFA_Build2a_025	Neakrase	PDS4 Public Impressions	Problem: PDS4 is a daunting and confusing change from past iterations and many members of the data provider and end-user communities are unsure of the reasoning behind making the change to an XML based system.	Recommendation: I think we as the PDS, should have a canned response or at the very least a list of reasons behind moving from the ODL to the XML implementation, including a rationalization of move and the relative merits and/or improvements that the XML implementation will allow us. Perhaps we should consider "branding" to present a coherent, unified picture of the expected improvements for the new system. Though not directly necessary for the Build 2b release, we have another opportunity to reach the planetary community approaching through the LPSC in March (2b-2c Release).	DELIVERED	Update planned to http://pds.nasa.gov/pds4 website to include marketing information for PDS4 as part of build 2b deployment. Beebe is leading an effort to improve the information and make it accessible from the discipline nodes.		See comments and updated PDS4 website; The PDS is also attending and educating the public at conferences.
RFA_Build2a_036	Anne Raugh	SBNUMD35: Product_Collection_Data not required to contain members	The Product_Collection_Data is not required to contain anything except an identification area. So it is possible to have a collection with no members about which nothing is known except its ID info.	The lack of membership requirement may be an artifact of schema generation. However, the lack of any other descriptive information seems like a bad idea. Was this really intended? If so, that should be better documented.	IMPLEMENTED	A team was formed to review and make recommendations for Bundles and Collections.	Implement the recommendations of the Bundle/Collection review team.	Implemented the recommendations of the Bundle/Collection review team. Product_Collection_Data has been deleted.
RFA_Build2a_037	Anne Raugh	SBNUMD31: Data Collection not required to contain "data"	Despite the fact that the name Product_Collection_Data implies that the collection will contain observational data products (as opposed to browse or documents, say), the data dictionary indicates that in the Identification_Area the user may specify a type other than "Data" for this collection.	Either define a single generic collection or require substantive difference between collections of different type. Revise documentation appropriately	IMPLEMENTED	A team was formed to review and make recommendations for Bundles and Collections.	Implement the recommendations of the Bundle/Collection review team.	Implemented the recommendations of the Bundle/Collection review team. Defined a simple generic collection.
RFA_Build2a_038	Anne Raugh	SBNUMD10: DPH Missing Multi-Object labels	There appears to be no indication of how to handle labels with more than one data object in them - a fairly common occurrence that applied to my test data. Neither was there any mention of where to find structures for things like FITS headers, which don't have stand-alone Product_* schemas.	Rewrite to include at least minimal information and guidelines for multi-object labels.	IMPLEMENTED	The process for generating PDS4 XML label document instances from the Master schema is now being finalized and documented.	Document the process addressing this specific issue.	There is a DPH example that describes label containing multiple objects. The DPH contains a reference to the example.
RFA_Build2a_039	Anne Raugh	SBNUMD09: DPH Appendix C - Missing Information	Appendix C ignores the fact that the vast majority of schemas will reference two or more local dictionaries, not one. It does not address how to handle the Mission_Area or Node_Area when more than one node or mission namespace is referenced, either. The example further shows local keywords without a containing local class - which I thought was not permitted (though I can't find documentation that is specific on the point one way or another). The examples for this section show labels, not schema - so there is not indication of how to create a schema that will support what is shown. There is no indication of how to reference non-PDS namespaces	Substantial rewrite followed by technical editing.	IMPLEMENTED	The process for generating PDS4 XML label document instances from the Master schema is now being finalized and documented.	Document the process addressing this specific issue.	The current version of the DPH addresses multiple namespaces
RFA_Build2a_040	Anne Raugh	SBNUMD08: DPH Appendix C - Inconsistent Context	Appendix C switches between schema editing and label editing without warning or explanation, and sometimes for no readily apparent reason.	Thorough technical editing	IMPLEMENTED	The process for generating PDS4 XML label document instances from the Master schema is now being finalized and documented.	Document the process addressing this specific issue.	The current version of the DPH addresses label editing.
RFA_Build2a_041	Anne Raugh	SBNUMD07: DPH Organization	The DPH should be a series of small, task-oriented tutorials, recipes, and/or examples. Detailed examples should be in a separate document to avoid the pervasive disconnect between examples and the current form of the schema at least until development is complete.	Reorganize and rewrite the DPH as needed. I suspect it would actually be better developed as a wiki, with various PDS personnel contributing and maintaining sections according to their expertise. After major development has been completed, perhaps then a conversion to a more permanent format would be appropriate.	CLOSED	The PDS4 documentation suite is currently being reviewed. The DPH and the standards reference are being modified and new material is being posted to a PDS4 wiki for build 2b data providers.		DPH as currently updated is being delivered as part of Build 2c. The remaining issues associated with this RFA are being subsummed under the new RFA_Build2c_Beta_030 - GEOWU_01 (Slavney) - Documentation.
RFA_Build2a_042	Anne Raugh	SBNUMD06: "How-to" information in the wrong place	The actual information needed on how to edit a schema, step by step - that is, how to prepare data - is relegated to an appendix of the DPH.	Reorganize the DPH as a series of task-oriented tutorials. Only information that is peripheral to the process of data preparation - like a glossary - should be relegated to appendices	IMPLEMENTED	Need to get experience and fold back in documentation.		The current version of the DPH now explains how to edit a schema.

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RFA_Build2a_043	Anne Raugh	SBNUMD02: Bundle content layout	The Standards Reference confuses terms among physical storage layout, "archive" organization, and bundle structure. The net effect is that it looks like we're still using the PDS3 volume structure – which retains all the problems inherent in that. It also implies strongly that things like documentation and schema files must be either divided or repeated in each bundle from a single source, or that all sources must produce only single-bundle archives. Neither of these is, to the best of my knowledge, true, and to imply that this artificial division forced onto PDS3 data volumes should be carried into PDS4 undermines one of the large goals of the redesign – rational organization of information.	Determine what the actual intent was; decide whether that was appropriate; rewrite documentation accordingly.	IMPLEMENTED	A team was formed to review and make recommendations for Bundles and Collections.	Rewrite documentation.	As per Lyle's request for LADEE and agreed to by the DDWG, an archive structure description was written to describe the physical layout of deliveries to the PDS. Any remaining issues associated with this RFA are being subsummed under the new RFA_Build2c_Beta_030 - GEOWU_01 (Slavney) - Documentation.
RFA_Build2a_044	Anne Raugh	SBNUMD01: XML Catalog Setup	XML Catalogs are going to be an essential part of user environment setup to ensure we don't get hard-coded local schema references into the archive, where they are meaningless. Detailed instructions for what mappings will be required, what is appropriate for inclusion in XML Schema and label files, and the 2-3 main options for using local vs. remote schema need to be documented in a general (i.e., not commercial-product specific) way.	Research the XML catalog standard, provide a summary appropriate for PDS data preparers and end users, and create tutorials to cover XML catalog setup for validation by node personnel and data preparers. Develop standards for namespace nomenclature and physical location references in generic schema to promote relocatable references and proper use of XML catalogs in data preparation and validation.	IMPLEMENTED	The process for generating PDS4 XML label document instances from the Master schema is now being finalized and documented. XML Catalog information and tutorials have been made available to the DDWG on the wiki.	Document the process addressing this specific issue.	Appendix D of the DPH documents the use of XML Catalog
RFA_Build2a_045	Anne Raugh	SBNUMD03: No Node Tailoring Instructions in System Documents	I could find absolutely no information on the specifics of how the nodes are expected or allowed to tailor schemas for the data designer, who will then create specific schemas. Since this was supposed to be a test "for node personnel", this seems like a catastrophic failure.	If the procedures have been defined, test and then document them. If they have not, develop then test and document.	IMPLEMENTED	The process for generating PDS4 XML label document instances from the Master schema is now being finalized and documented.	Document the process addressing this specific issue.	The current schema process for creating a schema doesn't make use of either "tailored" or "specific" schemas.
RFA_Build2a_046	Simpson	Documentation	There are too many PDS4 documents, each trying to cover too much ground, losing focus, leaving huge gaps, and being riddled with inconsistencies. Meanwhile, the Information Model, the foundation upon which almost everything else is built (and which is available in at least HTML), remains actively hidden by some and unused by most. Instruction on how to use XML in the PDS4 environment is spotty and ineffective	It is important to have useful documentation in time for MAVEN and LADEE designers to use it. Much of their development will be guided by PDS staff, but staff need the reference material in order to provide the right guidance. PDS no longer has the luxury of time; it must decide which documents to complete and how. RS recommends promoting the <i>Information Model</i> (IM) as the basic reference for structure, utilizing the <i>Data Dictionary</i> data base (DDdb) as the basic reference for 'data element' definitions and constraints, restricting the <i>Standards Reference</i> (SR) to policies and constraints not covered by the IM and DDdb, and the <i>Standards Reference</i> (SR) to policies and constraints not covered by the IM and DDdb, and	CLOSED	The PDS4 documentation suite is currently being reviewed. The DPH and the standards reference are being modified and new material is being posted to a PDS4 wiki for build 2b data providers.		The Standards Reference and DPH documents as currently updated are being delivered as part of Build 2c. The remaining issues associated with this RFA are being subsummed under the new RFA_Build2c_Beta_030 - GEOWU_01 (Slavney) - Documentation.

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RFA_Build2a_047	Rose	Software Product Metadata Problems	Comment/Concern: The metadata defined for software products (Product_Software, Software_Desc, Software_Script, Software_Binary, and Software_Source) is not well suited to archiving of software as typically packaged. There are several problems: 1) Poor support for tagging of multiplatform software: For example, if a Java software product is being described, it may require J2SE 6. This is neither an "architecture" nor an "os" (as typically defined), but those are the only 2 attributes that can be specified as a target platform. 2) Overly restrictive documentation delivery requirements: The metadata requires the specification of a "program_notes_identifier," a "programmers_manual_identifier," and a "users_manual_identifier." Besides the fact that it's unclear what these "identifiers" mean, it's common that a piece of software may not need all of these documents. It's also typical that a software distribution contains documentation that is embedded in an archive file or in an installation file, making the "identifier" describing those documents hard to specify. Further, it may be more useful to have a link back to a web site for the software, but there is no way to do that in the metadata.	Recommendation: 1. Add controlled vocabularies for <supported_os>, <supported_architecture>, <sw_format_type>, <software_type>, <software_language>, possibly others. 2. Change <system_requirements> to a longer string type. 3. Consistently abbreviate, or not, "identifier". 4. Remove the <files> element. 5. Add documentation about what <software_id> is supposed to be, or remove it. 6. Be more flexible in how software documentation is tagged. 7. Support tagging of multiplatform software, especially software that runs on a VM, for which one cannot specify in advance the supported OS/architecture list.	CLOSED	S/W policies still need to be understood for PDS4 as well as for LADEE and MAVEN.		Currently software is only documented and archived as a Product_Document. The Product_Software class is only used for operations.
RFA_Build2a_048	Mark Rose	Unused Types in the Schemas	Comment/Concern: There are several types defined in the schemas that are not referenced anywhere, nor are they obvious candidates for top-level elements: CAHVORE_Detector, Identification_Area_System, Individual_Investigation, Observing_Campaign, Other_Investigation, Quaternion_New_Reference	Remove unused types indicated above.	IMPLEMENTED			Unused types have been removed. Some types have been left as hooks for classes currently under development.
RFA_Build2a_049	Anne Raugh	SBNUMD32: Name_Resolution class appears in all labels	The Name_Resolution class was not designed for labels, does not belong in any product labels, and as far as I know there were never any plans to support it – so it shouldn't appear anywhere.	Remove Name_Resolution class from all products (including collections and bundles).	IMPLEMENTED			Renamed name_resolution to target_identification
RFA_Build2a_050	Anne Raugh	SBNUMD29: Product_* seem to be identical	It looks like most data-related products have exactly the same content. I don't see a difference, for example, between Product_Array_2D_Image and Product_Array_3D_Image. The required classes seem to be the same; neither is required to contain the object for which it is named; both may contain pretty much any other data object named.	Either remove all specific Product_* classes in favor of a very small number of generic products (observational, document, collection, etc.), or require some meaningful difference between Products with specific names.	IMPLEMENTED	Product_* that are subclasses of Product_Observational have been removed. Most of the remaining specific Product_* classes are for operations. Uniquely named product classes allow the registry to build classification schemes for operational purposes.		Removed all specific Product_Observational have been removed. Most of the remaining specific Product_* classes are for operations. Uniquely named product classes allow the registry to build classification schemes for operational purposes.
RFA_Build2a_051	Anne Raugh	SBNUMD30: Product_Collection mismatch	The DPH indicates that different Product_Collections exist for various types of collections. In the generic schema assortment, though, I see only two: Product_Collection and Product_Collection_Data. Where are all the others? But even the two present seem to contain identical content, and there is no practical difference even in the description provided for each.	Either define a single generic collection or require substantive difference between collections of different type. Revise documentation appropriately.	IMPLEMENTED	.		The collection_type attribute has been added to the collection class. The allowed class types are enumerated.
RFA_Build2a_052	Anne Raugh	SBNUMD28: Product_Array_2D_Image not required to contain Array_2D_Image	According to the data dictionary, the Product_Array_2D_Image is not required to contain the Array_2D_Image for which it is named.	Either remove all specific Product_* classes in favor of a very small number of generic products (observational, document, collection, etc.), or require some meaningful difference between Products with specific names.	IMPLEMENTED			Removed all specific Product_* classes under Product_Observational.
RFA_Build2a_053	Anne Raugh	SBNUMD22: Display_orientation is optional in Array_2D_Image	Display orientation should always be required for 2D image data.	Required display orientation attributes for all image-type data objects.	IMPLEMENTED	A team was formed to review and make recommendations for Array_Base and associated classes.	Implement the Array_Base team recommendations.	Implemented the Display_2D_Image class for Array_2d_Image.
RFA_Build2a_054	Anne Raugh	SBNUMD17: Observing_System description is required	Why is this required? If it is required, content specifications should be provided.	Descriptions should be optional. Where descriptions appear to be mandatory, determine whether there are actually specific attributes that should be required, and require those, and if not justify why a description should still be required.	IMPLEMENTED		Implement the "preamble" recommendations from ACR's IM review.	Implemented the "preamble" recommendations from ACR's IM review. The observing system class was modified.
RFA_Build2a_055	Anne Raugh	SBNUMD16: Identification_Area <title> is required? Is it unique? Is it validatable?	Why is this required? Is it required to be unique? How would you validate uniqueness?	Only require attributes that have a specific purpose that makes them essential. The uniqueness constraints on all attributes in the Identification_Area need to be explicitly stated in the data dictionary and anywhere else containing detailed description. All uniqueness constraints must be tested during validation.	IMPLEMENTED		Implement the "preamble" recommendations from ACR's IM review.	Implemented the "preamble" recommendations from ACR's IM review. The naming and identification attributes were modified.

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RFA_Build2a_056	Simpson	Incompatible DSN Raw Data Binary Formats	DSN raw radio science data have been delivered in six fundamental formats for the past three decades. The detailed formats have undergone various changes, but both formats and content have remained remarkably stable over the years. They were introduced in roughly this chronological order: 1) DSN 820-013 TRK-2-18 (Orbit Data File, or ODF) 2) DSN 820-013 TRK-2-25 (Archival Tracking Data File, or ATDF) 3) DSN 820-013 RSC-11-11 (Original Data Record, or ODR) 4) DSN 820-013 0159-Science (Radio Science Receiver, or RSR) 5) DSN 820-013 TRK-2-34 (Tracking and Navigation, or TNF) 6) DSN 820-013 0212-Tracking-TDM (Tracking Data Message, or TDM). The ODF is being phased out; it will not be delivered to 'new' missions effective this year. The ATDF and ODR have not been delivered since 2002. But there are many ODF, ATDF, and ODR files in PDS3; each is described by a full PDS label. The RSR and TNF were introduced in 2002 and are in many PDS3 archives; the RSR is described by a full PDS label, but the TNF uses only a PDS minimal label (RS judged the effort required to develop a full label not to be cost-effective). The TDM is new in 2011; of the six, it is the only ASCII file.	There are at least three possible solutions: (1) rewrite the files into formats that are PDS4 compliant; (2) allow for signed and unsigned integer formats that have arbitrary bit lengths, alignments, and interpretations (lengths of 32 bits should be sufficient); and (3) designate the DSN formats as acceptable encoded byte streams. (1) <i>This is the hardest and least desirable solution; but it is consistent with current PDS4 policy.</i> The radio science and navigation user community is not in favor of this solution.	IMPLEMENTED	PDS MC action to create a waiver for DSN ODF as a Parsable_Byte_Stream		A waiver to defined DSN ODF files as a type of parsable_byte_stream is expected. Also a Packed_Decimal_Field class was added to allow for bit fields.
RFA_Build2a_057	Anne Raugh	SBNUMD41: Bundle or Archive_Bundle?	I couldn't figure out the philosophical difference between a Bundle and an Archive_Bundle. What's so special about a "readme" file that it has the power to transform one into the other? Which was I supposed to be creating for this exercise?	Either eliminate the redundant product or specifically document the differences and when each is to be used.	IMPLEMENTED	A team was formed to review and make recommendations for Bundles and Collections.	Implement the recommendations of the Bundle/Collection review team.	The Bundle class has been added to Product_Bundle with a bundle_type with enumerated values archive_bundle or secondary.
RFA_Build2a_058	Rose	Local Data Dictionaries	Comment/Concern: The data contained in Local Data Dictionaries, and the process as defined in the DPH for build 2a, section 13.1, are overly complex. The schema for local data dictionaries is essentially duplicating the purpose of XML Schema, defining a language for defining metadata. And the schemas created in step #8 of the process outlined in DPH section 13.1 will still require further modification not captured in the local data dictionaries if missions or Nodes want to add foreign XML vocabularies to the <Mission_Area> or <Node_Area> sections of the label.	Recommendation: Change the envisioned process for arriving at a specific schema. Instead of spending effort in creating a "Dictionary Service," as envisioned by DPH section 13.1 step #8, invest in a label design tool for PDS4. That would more directly generate the local schemas, and its output could include a dictionary change request which would replace the current "local data dictionary."	IMPLEMENTED	A team was formed to investigate alternate approaches to the current Local Data Dictionary Schema and Green Tool.	Implement the recommendations of the LDD team.	The PDS4 DDWG/SDWG teams have developed an XML schema structure to capture the information contained in the Local_DD schema. The structure and process are being documented. The currently available tool is Oxygen.
RFA_Build2a_059	Susie Slavney	PDS4 data dictionary tools needed both for local and general data dictionaries		Data providers need tools for looking up elements in the general PDS data dictionary and local data dictionaries, as well as the tools for creating local data dictionaries that Mitch discussed.	IMPLEMENTED	A team was formed to investigate alternate approaches to the current Local Data Dictionary Schema and Green Tool. A data dictionary service is planned.	Implement the recommendations of the LDD team.	The PDS4 DDWG/SDWG have developed an XML schema structure to capture the information contained in the Local_DD schema. The structure and process are being documented. The currently available tool is Oxygen. Other tools are being considered.
RFA_Build2a_060	Anne Raugh	SBNUMD14: No local DD generation utility	There is no specific information in the documents I could find for how to create a local dictionary. Halfway through the test we were told to fill out the Local_DD.xsd and send it to someone <i>who was on travel</i> for processing. This is not an acceptable method. Relying on network communication to update local dictionary information is not an acceptable solution.	Develop a rational interface for collecting local dictionary information and provide an offline utility for processing that into a) a usable local schema file that can be referenced by label schemas; and b) a review version that contains summary information for data reviewers and end users.	IMPLEMENTED	A team was formed to investigate alternate approaches to the current Local Data Dictionary Schema and Green Tool.	Implement the recommendations of the LDD team.	The PDS4 DDWG/SDWG have developed an XML schema structure to capture the information in the Local_DD schema. The structure and process are being documented. The currently available tool is Oxygen.
RFA_Build2a_061	Anne Raugh	SBNUMD13: Local_DD.xsd schema is a mess	This schema is full of ISO jargon completely unrelated to any other aspect of PDS4 that a data preparer needs to deal with. It doesn't actually require sufficient information to define anything - attribute or class. The definitions of the various fields as given in the Data Dictionary are uniformly circular. Nothing like this should ever be handed to a data preparer.	Never show this to a data preparer again. Develop and implement a reasonable interface to gather local data dictionary information from data designers.	CLOSED	The Local_DD schema is being used successfully to ingest data dictionary information into the PDS4 data dictionary data base. It was reviewed by the data dictionary review team. It is not to be used directly by a data provider for developing a local data dictionary. This latter topic is under discussion by the local data dictionary team.		The name of the Local_DD schema will be changed to something like Ingest_DD.

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RFA_Build2a_062	Anne Raugh	SBNUMD27: Array Storage Order increase format complexity	Because of the additional variational allowed by the axis_sequence_number and the lack of specification of what constitutes "first axis", there is even more scope for variation in this definition of a 2D array than there was in PDS3.	Do not allow PDS4 to have MORE data formats than PDS3!	IMPLEMENTED	A team was formed to review and make recommendations for Array_Base and associated classes.	Implement the Array_Base team recommendations.	The array_base review team's recommendations were implemented. For example, see the LAST_INDEX_FASTEST value for axis_index_order in Array.
RFA_Build2a_063	Anne Raugh	SBNUMD23: Display_Orientation references "lines" and "samples"	There are attributes in the Display_Orientation that refer to "lines" and "samples", but there are no attributes in the array class that correspond to "line" and "sample". The display orientation needs to be defined with respect to the physical axes as stored, not to any other interpretation that may or may not have been applied to the axes defined.	Either expunge all "line" and "sample" references in image attributes, or insert them uniformly as mandatory terminology in applicable all cases. This might include, for example, requiring (via the generic schema) that the first axis in an Array_2D_Image object is called "lines", or even that the Array_Axis classes are replaced by a Line class and a Sample class.	IMPLEMENTED	A team was formed to review and make recommendations for Array_Base and associated classes.	Implement the Array_Base team recommendations.	The array_base review team's recommendations were implemented. Display_2D_Image was implemented for Array_2D_Image.
RFA_Build2a_064	Anne Raugh	SBNUMD21: axis_sequence_number introduces yet another potential image storage order variation/uncertainty	As this is defined, at least in Array_Map storage, this appears to allow the user to specify the first axis as second. Or both axes as number 1. Or even identifying one axis as "9" and another as "3". XML is inherently ordered, so the attribute is unnecessary unless the intention is to allow users to randomly redefine axis order as anything other than the order of their description in the XML label. This does not improve the stability of the archival data, and in fact introduces a new variable in data formats that was not present in PDS3! No indication is given of how sequence_number relates to axis_storage_order, so it's not clear what constitutes "first" if the first listed axis is not sequence_number 1.	Do not allow the user to specify a sequence number for axes. Map storage order directly to the order in which the axes are defined in the label. If a sequence number must be specified, include it as a fixed XML attribute in the axis definition and do not allow users to change it. Absolutely do NOT allow the number of data formats to increase under PDS4.	IMPLEMENTED	A team was formed to review and make recommendations for Array_Base and associated classes.	Implement the Array_Base team recommendations.	The array_base review team's recommendations were implemented. See the LAST_INDEX_FASTEST value for axis_index_order in Array.
RFA_Build2a_065	A'Hearn	Builds & Releases	We need to define what is involved in each "build" and which builds are released to whom. We should not be releasing widely "standards" that are likely to change. Releasing a document that is "correct" but not well written is probably ok. Anything that is released to a wide community needs to be very clearly labeled "DRAFT" if changes are anticipated on a short (< few years) time scale.	Present a schedule containing these clarifications. This is not a show stopper for build 2 as long as other RFAs limiting release of build 2x are accepted.	DELIVERED	Incremental build schedule has been planned. The Build 2b release will support LADEE and MAVEN.		The Build 2b was defined as an internal release. The documents released were primarily for internal review and testing purposes. The Build 2c release will include a subset of documents for public use in planning PDS4 archives.
RFA_Build2a_066	Susie Slavney	PDS4 builds after 2b: Need more time for PDS4 working groups to respond to liens	The DDWG, for one, needs more time to react to liens relating to the data model, data dictionary, and XML schema. During Reta's presentation yesterday it was mentioned that the build following 2b will be scoped in March 2012, reviewed and released by May 2012. This is not enough time.		DELIVERED	Incremental build schedule has been planned. The Build 2c release is currently being planned.		The PDS4 development teams continue to evolve the schedule while balancing resources.
RFA_Build2a_067	Susie Slavney	Build 2b readiness: What comes after 2b?	Our review yesterday and today concerns what work is to be done for PDS 4 Build 2b to be released by January 31, primarily to support LADEE and MAVEN archive development. I would like to see a projection of work to be done for the next two or three builds, whether they are named 2c, 3, or whatever. In particular, if certain tasks that were planned for 2b have to be postponed to a later build, when can we expect them to be done? Give dates, at least approximate ones.		DELIVERED	Incremental build schedule has been planned. The Build 2c release is currently being planned.		The PDS4 development teams continue to evolve the schedule while balancing resources. Build 2c will include more internal testing and will be an operational release.
RFA_Build2a_068	Anne Raugh	SBNUMD53: No deletion from registry	There is no "delete" option in any of the documentation or in the Registry user interface. It is essential that people running these things, whether in testing or production mode, have a way to correct mistakes without having to reinstall software. Turns out there is a magic incantation that will do this via a curl command to the Tomcat server, but that was sent in an email when I asked how to delete the package test data so I could prep for registering my own data. Even if this was documented, this is not a satisfactory solution for roll out. It has to be almost as easy to fix mistakes as make them, or we're going to have a lot of junk hanging around in our registries very quickly.	Add support for at least package deletion (i.e., everything registered in the same run is deleted). It is not acceptable to send out software like this without a basic capability to correct mistakes.	IMPLEMENTED	As Anne eluded to in her problem statement, the Registry does support deletion of packages and single registry entries via a command-line interface.	The capability to delete packages and single registry entries is planned for implementation in the Registry User Interface for Build 2c.	This has been implemented as described in the plan.

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RFA_Build2a_069	Anne Raugh	SBNUMD52: PDS2010 Harvest tool summary is ambiguous	The output summary from the Harvest tool is ambiguous and misleading. From the simple aliveness test I ran, I got a summary stating "26 of 27 files, 0 skipped". I had to ask Sean H. for an explanation. Turns out one file failed, but this was not mentioned in the summary! The summary went on to report that these 26 files had resulting in 78 products being registered. But that's not possible, in that in PDS4, 1 Product = 1 Label is supposed to be an absolute. Turns out the difference is that there are virtual "products" created for every physical file, and Harvest is counting those. This is a case of "product" being used to mean two different things AT THE SAME TIME. This summary needs to give a complete and accurate set of counts for what was processed and what wasn't, without confusing internal programmer's jargon with terminology the user sees in the standards and software documentation. A node employee should not have to learn new jargon just to run this tool.	Redesign Harvest summary output; make sure all input is accounted for in the summary listing; raise the prominence of failures.	IMPLEMENTED		The Harvest Tool report will be made more clear with respect to product and associations registered with the Registry Service for Build 2c.	This has been implemented as described in the plan.
RFA_Build2a_070	Anne Raugh	SBNUMD51: PDS2010 software not configured for production use	These tools cannot be configured for general use in a network environment in their current state, and would require a programmer to patch that failure. Standards for open source packaging have existing for some time. To distribute software in this state is not acceptable for operations. Specifically:1) Each tool requires its own directory tree, with bin/, lib/, src/, etc. directories. When I asked if these could be combined, I was advised that it would not be safe to combine lib/ directories because of name conflicts. That means that it is possible that two library files with exactly the same name - included at least two minor version level - might have different contents. This is absolutely unacceptable 2) Each tool bin/ directory must be added to each user's PATH in order to be found., The previously noted dependence on JAVA_HOME, which may vary from user to user, has unknown consequences on any attempt for a system-level install d) There are hard-coded paths in the execution scripts that crawl the directory tree to find executables and libraries rather than relying on logical settings.e) There are wild cards in executable file names within the execution scripts, making it impossible to have multiple	Use open source standard packaging techniques for machine independence and system-level install for any software ever intended for distribution, even just to other PDS nodes.	IMPLEMENTED	Actually, the packaging used for each component that includes its own directory tree including bin/, lib/, etc. sub-directories is pretty common place in open source distributions. It is generally not a good idea to combine distributions of multiple Java applications due to possible library conflicts and the complications it would create for future upgrades of components. The current distribution package allows the user to create a symbolic link to the current package. The link can be used to access the executable from the user's defined path. When a new version is available, the user only needs to update the symbolic link to utilize the new version of the software. The JAVA_HOME issue is addressed in RFA RFA_Build2a_075. As for the commands and wild cards used in the executable scripts, testing at the EN has not revealed a problem. A new section has been added to the appropriate Installation documents if this is an issue for a given component in a given environment.	A new section has been added to the appropriate Installation documents addressing the issue where an executable script fails to determine its current working directory. This update is available in the Build 2b release.	
RFA_Build2a_071	Anne Raugh	SBNUMD49: Derby Database Cleanup	The derby database included with the registry software package was problematic when it took several install attempts to get the software running. There were no cleanup instruction supplied, and left-over files and directories from previous install attempts cause later attempts to fail.	At the very least, document complete procedures needed to uninstall and re-install cleanly.	IMPLEMENTED			A section has been added to the Registry Service Installation document that describes how to delete the database. This update is available in the Build 2b release.
RFA_Build2a_072	Anne Raugh	SBNUMD48: PDS2010 Documents rely on jargon	The documents frequently used internal jargon that was never explained and required me to go back to JPL to ask for clarification. Expressions like "application endpoint", for example. This is worse in printed PDF documents where the jargon might have linked to something useful, which cannot be accessed from hard copy. The sentence "Verify a successful installation by executing the command from the Ping portion of the Operation Section." The document in question had no "Operation Section".	Technical editing for non-specialist use.	IMPLEMENTED			Attempts have been made to reduce technical jargon, at least the example provided in the problem statement. In addition, the PDF form of the documentation was removed to retain consistency and proper linking among the several documents that make up the software documentation. This update is available in the Build 2b release.

Build 2c+ RFA List

RFA #	Name	Topic	Problem	Recommendation	Disposition	Comments	PLAN	RESOLUTION
RFA_Build2a_073	Anne Raugh	SBNUMD46: Difficulty finding PDS2010 download files and installation instructions	I had repeated difficulty determining which elements to download, finding the download links, and locating installation information. While there were installation documents, these tended to be incomplete, with final - and necessary - configuration in the "operations" section/document. Installation is not complete until the software is operational! For example, the Harvest utility "installation" instructions are only instructions for downloading an unpacking the software. It cannot be run in this state. The additional steps required before the tool can even be tested are in the operations document.	Reorganize documentation; use consistent locations for download links and install information; follow open source standards where applicable.	IMPLEMENTED			Finding the correct download links was complicated by the PDF form of the documentation. This form has been removed for the current release. All Installation and Operation documents were reviewed and modified to make sure that all installation and configuration procedures were captured in the Installation document for each component. This update is available in the Build 2b release.
RFA_Build2a_074	Anne Raugh	SBNUMD44: Tomcat server issues	Tomcat seems to be a tetchy piece of software. It is known to have issues shutting down cleanly in certain environments. The document provided does not cover the known issues, which had to be resolved via Google search.	Either choose a less cranky application platform or improve the documentation on the Tomcat platform.	IMPLEMENTED	PDS can provide support documentation for its products, but it needs to be careful with writing support documentation for external software. EH has not encountered a situation during testing where Tomcat has not shutdown properly.	A Tomcat Deployment document was supplied in Build 2a (linked from the RDD) that details the deployment of an Apache Tomcat server for use with PDS software. A procedure for checking for proper shutdown will be added to that document for Build 2c.	The Tomcat Deployment document was updated with a procedure for terminating a Tomcat server that did not shutdown properly. This update will be available in the Build 2c release.
RFA_Build2a_075	Anne Raugh	SBNUMD45: JAVA_HOME ambiguities	It is not clear which JAVA_HOME the PDS2010 services are using - the user's, that of the Tomcat server, the system default, or another one. On my system, for example, the first three are very different versions of Java (1.6-1.6, 1.6-29 and 1.4, respectively). Since the software is version-dependent, this is rather critical	Improve documentation. Better, improve the entire installation procedure to select and set the correct JAVA_HOME based on installer-supplier parameters.	IMPLEMENTED	The launch scripts for the various components are flexible where they can utilize the JAVA_HOME defined in the environment or it can be specifically defined in the launch script itself. Specifying the variable in the launch script provides the most control over the Java environment utilized by the component.		The installation documents have been updated to describe how and where to set the JAVA_HOME variable. This update is available in the Build 2b release.
RFA_Build2a_076	A'Hearn	Testing	No end-to-end testing, at least none that passed	Perform an end-to-end test: nodes starting with the generic schema to be distributed to MAVEN/LADEE, developing detailed schema for products (including LDD and node portions of schema), and validating them with a validation tool).	DELIVERED			In preparation for Build 2c there has been significant node testing.
RFA_Build2a_077	Anne Raugh	SBNUMD11: Header_0500g.xsd does not stand alone	When I found the Header object I wanted in a schema fragment, it contained no information - just an element definition based on a type in a different file - making it impossible to edit the actual data object without further explanation, which I did not find.	Procedures for objects like headers need to be included in the DPH or equivalent.	PENDING	Planned documentation updates will better explain the use of data objects within Product_Observational.		
RFA_Build2a_078	Anne Raugh	SBNUMD05: No namespace nomenclature rules	No nomenclature rules are given for creating namespace URIs or associating URIs to URLs or physical files. The current naming scheme, such as it is, is disorganized and contains redundant or irrelevant fields.	Investigate W3C and similar standard recommendations for namespace nomenclature, especially in light of both the long-term stability desires of PDS archiving and the immediate need for developers to be able to improve elements contained within individual namespaces. Develop nomenclature for permanent namespace URI assignment, and configuration control methods for tracking development versions of individual schema without compromising the long-term stability of the archive references.	IMPLEMENTED	A team was formed to review and make recommendations for namespace nomenclature.	The recommendations will be included in future documentation.	The recommendations have been posted to the PDS4 Wiki site. The recommendations are in the process of being implemented.
RFA_Build2a_079	Anne Raugh	SBNUMD47: PDS2010 Documents not usable as paper documents despite PDF format	The documentation for installation and use was supplied in PDF format. These PDFs frequently contained imbedded links for which the URLs were not visible. I work off of paper documentation for installs because of limitations in available screen real estate and visual acuity. These links are not visible in the printed documents and certainly aren't usable.	Do not rely on hidden links in PDF documentation; do not produce documentation as PDF unless it is fully usable in hard copy form.	IMPLEMENTED	Need to determine whether there is a more viable approach.		The PDF form of the documentation was removed to retain consistency and proper linking among the several documents that make up the software documentation. This update is available in the Build 2b release.
RFA_Build2a_080	Susie Slavney	Coordination of related schemas	Node personnel who are tailoring schemas for a particular data set (bundle, collection, product, whatever; I find it difficult to avoid the term "data set") need to know what elements of the schema should be coordinated with schemas for related data sets; for example, those from another instrument on the same mission. The mission lead node has to provide some coordination for participating nodes on the mission. In PDS3 the lead node coordinated such things as mission phase names and volume IDs. It is not clear in the PDS4 model what parts of the schema need this kind of coordination and how it should be implemented.	The instructions for tailoring a schema should explain what elements of the schema may have relevance outside the scope of the object being described, and what is the standard practice for coordinating these elements. This is not necessarily a need for Build 2b.	CLOSED	The PDS4 documentation suite is currently being reviewed. The DPH and the stanards reference are being modified and new material is being posted to a PDS4 wiki for build 2b data providers.		Consider whether this is a part of the archive preparation guide. The remaining issues associated with this RFA are being subsummed under the new RFA_Build2c_Beta_030 - GEOWU_01 (Slavney) - Documentation.

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RFA #	Name	Topic	Problem	Recommendation	Disposition	Comments	PLAN	RESOLUTION
RFA_Build2a_081	Susie Slavney	Length elements should be optional in a delimited table	It is not necessary for the elements maximum_record_length and field_length to be required for a delimited table; they should be optional. Often these values are unknown or hard to determine, and a wrong guess may cause problems later that could have been avoided.	Make the elements maximum_record_length and field_length optional for delimited tables. This is not necessarily a need for Build 2b.	IMPLEMENTED			Made length attributes optional in Record_Delimited and Field_Delimited.
RFA_Build2a_082	Susie Slavney	Tables have required elements that are appropriate only for observation data	The table object is designed with the assumption that it is to be used for observation data. For cases where a table is used for information other than observation data the required observing_system class in the cross_reference_area does not fit.	Change the above from required to optional for such tables. This is not necessarily a need for Build 2b.	IMPLEMENTED		Implement the "preamble" recommendations from ACR's IM review.	Implemented the "preamble" recommendations from ACR's IM review. Cross_reference area has been omitted and the observing_system moved.
RFA_Build2a_083	Susie Slavney	Values for ASCII data_type in a table are confusing	The allowable values for data_type in the definition of a text field in a table object are overly complex.	Simplify the choices for ASCII text data types in a table. This is not necessarily a need for Build 2b.	IMPLEMENTED		Implement the "preamble" recommendations from ACR's IM review.	Implemented the "preamble" recommendations from ACR's IM review. Cross_reference area has been modified.
RFA_Build2a_084	Mike Martin	Category names within labels	An information model naming convention should be followed throughout the entire product label. Currently the attribute categories include Areas, Standards, Resolutions, References, Systems, Entries, Observational and Objects. Using more standard terminology for these categories will make it easier for users to understand the structure.	All attribute categories should use the suffix _Area. Try to keep the category terms to single words. Data_standards becomes Standards_Area, Bibliographic_reference becomes Bibliographic_Area, Cross_Reference can be shortened to Reference_Area, Digital_Object can be Object_Area.	IMPLEMENTED	The Team continues to change the names of entities to make them consistent with the PDS4 nomenclature standards.		Several class names have been changed to use _area.
RFA_Build2a_085	Mike Martin	Logical ID Terminology	The lid, guid and livid terminology and usage is very confusing. I don't think users can be expected to come up with these values.	Come up with a logical id scheme that is transparent to users.	CLOSED			The current implementation is preferred by a majority of the node representatives on the DDWG.
RFA_Build2a_086	Mike Martin	Observing system simplification	The observing system class has been extended to handle special cases for small bodies and radio science (according to Elizabeth) but this makes it more complicated for simple observing systems. On Steve's "PDS4 Model" slide the observing system doesn't seem to fit into the model.	Is there a way to provide a simple solution for the simple case, then an extension of some sort for the complex case?	IMPLEMENTED		Implement the "preamble" recommendations from ACR's IM review.	Implemented the "preamble" recommendations from ACR's IM review. The observing system area has been modified.
RFA_Build2a_087	Mike Martin	Data Structure Issues	The Policy Concerning Data Structures leaves several issues open to question.	Clarify the interpretation of the Data Structure Policy	CLOSED			Build 2c end-to-end testing is being used to determine whether or not the currently modeled data structure policy is adequate.
RFA_Build2a_088	Mike Martin	Information Model Policies	There needs to be a set of policies or rules for creating names for information model components and data dictionary entries.	Develop and apply a set of nomenclature policies or rules for terms used in the information model, data dictionary and local data dictionaries.	DELIVERED			Nomenclature rules have been reviewed and additional issues have been addressed.
RFA_Build2a_089	Mike Martin	Data Format Cost/Benefit Analysis	Every data format variation or subclass adds a costly burden to the data system design, documentation, software tool development, maintenance and training. A cost estimate should be attached to every variation above and beyond supporting flat fixed-length arrays and flat fixed-length tables which are made up of widely-recognized, standard data-types. This cost needs to be considered when adding special classes (e.g. delimited table), subclasses, bit fields, or arrays embedded in tables.	Estimate the long term cost of adding features to the data format choices.	CLOSED	The recommendation is addressed by separating the data structure component of a data format from its interpretive metadata. First PDS4 allows the addition of interpretive metadata by simple association, for example the Display_2D_Image is associated with all 2d images and enables their display. This type of "feature" is considered necessary in both an active and long-term archive by the imaging design team. There is an addition cost but the team believes that it is worth it. Second the creation of a subclass, for example array_2d actually reduces cost. See the literature on Object_Oriented paradigm.	The imaging discipline team has found uses for the majority of the array_base subclasses. In addition each of the three types of tables has node support.	The use of class hierarchies and prescriptive and rigorous class definitions will reduce ambiguity and greatly reduce the preparation, processing, and usage costs associated with confusing data standards.
RFA_Build2a_090	Mike Martin	PDS4 Magic Number	Most data formats standards use a magic number for format recognition by software and specify that certain file extensions be used.	Provide simple conventions for identifying and naming PDS4 files. This might include a standard tag in all PDS4 XML files. Data files might use .ARRAY, .CTAB, .BTAB.	CLOSED	Many science data systems use a generic ".DAT" for data as well so there are cases on both sides.		PDS4 has adopted XML as the implementation language. XML has standard opening tags that clearly indicate the file type.

Build 2c+ RFA List

RFA #	Name	Topic	Problem	Recommendation	Disposition	Comments	PLAN	RESOLUTION
RFA_Build2a_091	Mike Martin	Modeling of Files and Objects	I am uncomfortable with the modeling of files and objects. I think it is more logical to think of the objects and their descriptions as being embedded in the file. This would allow the file_area_observational container to be eliminated and leaves open the possibility of describing multiple files in a single product.	Embed object descriptions within the File_Area.	CLOSED	The data objects are currently embedded in the file_area.		The current implementation is preferred by a majority of the node representatives on the DDWG.
RFA_Build2a_092	Anne Raugh	SBNUMD40: Upper limits on numeric attribute values	Many numeric attributes seem to have upper limits that are based on some hardware constraint for binary representation. These are not inherent to the data type, and since attributes are all expressed as character string in labels it is not reasonable or wise to impose arbitrary limits on archival data descriptions based on contemporary hardware.	Do not place limits on attribute values unless they are actually required by the concept embodied by the attribute.	IMPLEMENTED			The large integer values used to indicate an unlimited upper bound is replaced by appropriate terms in the documentation. For example the string "unbounded" is used in the specification and data dictionaries.
RFA_Build2a_093	King	Table Binary Grouped	The Table_Binary_Grouped_Bit_Field provides the features necessary for a bit field, however it does not follow the same design pattern as other field types. Also it is an extension of Table_Binary_Extended which has elements which are not always needed for plain bit fields (e.g. "data_type" is meaningless for a bit field)	Redefine Table_Binary_Grouped_Bit_Field to follow the pattern as the other field types.	IMPLEMENTED		Implement the table_base recommendations from ACR's IM review.	Implemented the table_base recommendations from ACR's IM review. The Table_Binary_Grouped_Bit_Field has been replaced by Packed_Decimal field.

SUMMARY

OPEN	0
REQUIRES FOLLOW-UP	0
ACCEPTED	0
PENDING	1
IMPLEMENTED	42
DELIVERED	6
CLOSED	10
TOTAL	59