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To: pds4ddwg

Subject: Notes from PDS DDWG 2016 09 01

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September 1, 2016

Notes by Debra Kazden

Known Attendees:

R. Chen, M. Gordon, E. Guinness, L. Huber, C. Isbell, S. Joy (lurking), R. Joyner, D. Kazden, T. King, J. Mafi, S. McLaughlin, L. Nagdimunov, L. Neakrase, A. Raugh, R. Simpson, S. Slavney and J. Stone

Meeting Agenda and Summary

1) SCRs Under Discussion:

-- CCB-81: Add local internal reference to Axis Array (T.King)

-- None: waiting for Steve to make a decision as how to proceed

-- 20160818: sent email to Steve asking for status and should WG be formed

-- Steve wants to form WG

-- 20160901: add to agenda to form WG

(Not Discussed)

-- CCB-97: Add Composite Structure and Composite Component. (T.King)

-- 20141222: Open; Under DDWG Review

(Not Discussed)

-- CCB-125: The bit mask attribute seems to be misplaced and possibly missing where needed (A.Raugh)

-- 20150915: Open; needs DDWG discussion

- 20151008: Jordan to provide example label that uses bit mask
- 20160323: WG: J.Padams, R.Simpson, A.Raugh, R.Joyner
- 20160617: updates discussed by DDWG
- 20160621: Jordan waiting for feedback / comments; then will go back to DDWG
- 20160901: DDWG vote to Withdraw SCR
- ** (Not Discussed) **
- CCB-131: Missing constraint on Special Constants attributes (A.Raugh)
 - 20150922: Open
 - 20160223: under DDWG discussion
 - 20160322: EN governance; will take lead
- ** (Not Discussed) **
- CCB-133: Special Constants class precludes the ability to specify multiple invalid/missing constants (J. Padams)
 - 20151012: Open
 - 20151021: Under DDWG review
 - 20151022: WG -- Jordan, Steve and RJ; sent email to WG with proposed changes
 - 20151105: Jordan -- special constants needs to be specified per "band" not per "axes"
 - 20160706: email to Jordan asking about status / progress
- ** (Not Discussed) **
- CCB-138: Mismatch between context object types and values of type in Observing System Component class (A.Raugh)
 - 20151202: Open; under DDWG review
 - 20151203: WG: Anne, Steve, Dick, Jordan, and RJ
 - 20160310: until someone volunteers to lead the effort -- on hold
- ** (Not Discussed) **
- CCB-142: Create Data Quality Flags to hold metadata on Quality Flags (E.Shaya)
 - 20151229: Open;
 - 20160126: Under DDWG review
 - 20160322: Ed didn't like Simpson's CCB-142 implementation

- Ed wants a lot of specifics embedded into XML
- Simpson trying to figure out how to make it 'simpler'
- 20160323: Simpson generated presentation for DDWG review / comment
 - tabled until next session (20160410)
- 20160428: updates discussed by DDWG
 - requires IMG & others expertise to carry forward
- 20160505: discussed by DDWG; E.Shaya led discussion; 2 competing implementations
 - address 2 issues:
 - bang for buck in terms of worth doing
 - implementation recommendation
 - WG: Steve, Anne, Jordan & Chris, Lev
- 20160808: Packed Data issue presented / discussed at MC
 - pending MC decision
 - A.Raugh & R.Simpson to resolve and propose solution
- ** (Not Discussed) **
- CCB-149: Should PDS4 allow packed data? (E.Shaya)
 - 20160309: Open & Under DDWG review
 - 20160310: Sent email to E.Syaha asking that he upload his version of the IM for packet data to JIRA
 - DDWG will review and provide comments
 - PPI has volunteered to attempt to convert a PDS3 product using the Packed_Data class
- 20160322: dependency on CCB-153; and vice-versa
- 20160428: sent email to J.Mafi for status on providing examples
- 20160706: sent email to J.Mafi for status on providing examples
- 20160808: Packed_Data issue presented / discussed at MC
 - pending MC decision
 - A.Raugh & R.Simpson to resolve and propose solution
- ** (Not Discussed) **
- CCB-151: Bundle Member Entry and Internal Reference do not require either LID or LIDVID. (A.Raugh)
 - 20160309: Open & Under DDWG review

-- 20160322: EN governance; will take lead

(Not Discussed)

-- CCB-153: SR Needs Additional Description of Packed Data Fields. (E.Shaya)

-- 20160321: Open

-- 20160322: dependency on CCB-149; and vice-versa

-- 20160804: DDWG voted to send this to MC for discussion and possibly vote to either allow or disallow packed-data in archive

--Votes from 20160804 DDWG:

-- vote to raise the question to MC should packed-data be supported in archive data (e.g., Product_Observational)

ATMOS - yes

EN - no

IMG - no

GEO - yes

PPI - yes

NAIF - not present

SBN - yes

RS - yes

RINGS - endorse (via email) - not present

IPDA - not present

-- 20160808: Packed Data issue presented / discussed at MC

-- pending MC decision

-- A.Raugh & R.Simpson to resolve and propose solution

(Not Discussed)

-- CCB-154: Promote a Mission Information class to Discipline Governance Level. (S.Hughes)

-- 20160321: Open & Under DDWG review

-- 20160428: updates discussed by DDWG

-- formed WG: Steve, Anne, Jordan, Joe

-- 20160512: emailed Steve asking if the WG had met and is SCR ready to go back to DDWG for

discussion?

-- 20160615: emailed Steve asking if the WG had met to resolve issue

-- 20160901: DDWG vote to Withdraw SCR

****(Not Discussed)****

-- CCB-155: Need "Example Set" to include program test data. (A.Raugh)

-- 20160323: came from discussion of CCB-144

--20160323: Open; request to provide additional examples; to include 'test data'

****(Not Discussed)****

-- CCB-156: Inconsistent Discipline Dictionary Technique for Local Internal Reference, et al. (A.Raugh)

-- 20160418: Open

-- 20160623: Under DDWG review

-- 20160818: Will address "exposure rules" at Tech Session; A.Raugh will put together PPT

-- e.g., LDD shall reference element and not type

****(Not Discussed)****

-- CCB-159: Bug fixes for Version 1.7.0.0. (J.Hughes)

-- 20160426: Open & Under DDWG review

****(Not Discussed)****

-- CCB-162: Move <md5 checksum> from Object Statistics to Array (R.Simpson)

-- 20160622: Open & Under DDWG review

-- emailed Steve to TA

-- 20160629: TA'd; back to DDWG for discussion

-- 20160630: C.Isbell & Jordan & Dick to resolve issue(s); then back to DDWG

-- 20160829: email from R.Simpson with suggested implementation

-- back to DDWG for discussion

****(Discussed)****

-- CCB-164: Display Settings not required for images (A.Raugh)

-- 20160707: Open

-- 20160727: Under DDWG discussion

-- 20160818: Under DDWG discussion

- A.Rough to 'move' comments to body of the SCR -- ready for TA & vote ?
- 20160829: email from R.Simpson to Jordan with suggested implementation of promoting classes (e.g., Display_Settings) in DISP LDD to common IM
- ** (Discussed) **
- CCB-165: Ambiguity of ASCII Numeric Base* (L. Nagdimunov)
 - 20160818: Open & Under DDWG review
 - 20160823: email from Lev:
 - if there was a need for floats encoded as hex in PDS3, is there still some need in PDS4 or is the need gone?
 - if only applicable to int; is only applicable to unsigned MSB integer ?
 - 20160825: Lev to update SCR with alternate definitions for the three ASCII Numeric Base* attributes
- ** (Discussed) **
- CCB-166: Deprecate bit mask from IM for new sample bits attribute (J.Padams)
 - 20160901: Open & Under DDWG review
 - See comments from R.Simpson & Lev
 - 20160829: email from R.Simpson to Jordan on suggested changes
 - Jordan replied that the suggested changes are outside the scope of 166
- ** (Not Discussed) **

Notice sent before the telecon in email from R. Joyner - August 30, 2016 See enclosures:

- CCB-77: Augment Product Update with <File Area Update> - S.Hughes
 - 20160825: Withdrawn by Author

This week's agenda will focus on the following topics:

(1) Please review and be prepared to discuss and possibly vote to WITHDRAW SCR:

- CCB-154: Promote a Mission Information class to Discipline Governance Level. (S.Hughes)
 - 20160829: Steve added JIRA comment to request to withdrawn SCR

- 20160901: DDWG vote to Withdraw SCR
- CCB-125: The bit mask attribute seems to be misplaced and possibly missing where needed. (J.Padams / A.Raugh)
 - 20160825: email to Jordan asking if CCB-166 is replacement for CCB-125
 - propose withdrawing this issue in lieu of the newly created CCB-166 to replace the bit mask attribute with sample bits.
 - 20160901: DDWG vote to Withdraw SCR
- (2) Please review and be prepared to discuss and possibly vote:
 - CCB-165: Ambiguity of ASCII Numeric Base* (L. Nagdimunov)
 - 20160818: Open & Under DDWG review
 - 20160823: email from Lev:
 - if there was a need for floats encoded as hex in PDS3, is there still some need in PDS4 or is the need gone?
 - if not applicable to float; is only applicable to unsigned MSB integer ?
 - 20160825: Lev to update SCR with alternate definitions for the three ASCII Numeric Base * attributes
 - 20160901: DDWG to vote to send SCR to CCB
- CCB-164: Display Settings not required for images (A.Raugh) -- please review comment by R.Simpson for alternate implementation
 - 20160707: Open
 - 20160727: Under DDWG discussion
 - 20160805: A.Raugh added comment to address applicable set of objects
 - 20160818: Under DDWG discussion
 - A.Raugh to 'move' comments to body of the SCR -- ready for TA & vote ?
 - 20160829: R.Simpson added comment with suggested implementation of promoting classes (e.g., Display Settings) in DISP LDD to common IM
- CCB-166: Deprecate bit mask from IM for new sample bits attribute (J.Padams) - please review email from R.Simpson for suggested changes
 - 20160901: Open & Under DDWG review

- See comments from R.Simpson & Lev
- 20160829: email from R.Simpson to Jordan on suggested changes
- CCB-162: Move <md5 checksum> from Object statistics to Array (R.Simpson) -- please review email from R.Simpson on suggested implementation
 - 20160622: Open & Under DDWG review
 - emailed Steve to TA
 - 20160629: TA'd; back to DDWG for discussion
 - 20160630: C.Isbell & Jordan & Dick to resolve issue(s); then back to DDWG
 - 20160706: email to C.Isbell & Jordan & Dick asking if issues within WG are settled
 - 20160804: email to Jordan asking about status / progress
 - 20160829: email from R.Simpson with suggested implementation
 - back to DDWG for discussion

DDWG Telecon

CCB/SCR Statuses

CCB-77 was withdrawn by the author - which we all agreed on, so yay for our team.

We had three SCRs to vote on on the agenda, but "we" shouldn't be voting on withdrawing SCRs - that's up to the author, so we're amending that to let people know...

Question: So really you are asking if anyone wants to discuss any of the SCRs before they are withdrawn?

Answer and Another Question: Yes. Any objections?

Answer: (Silence)

All three are gone.

CCB-165 - Ambiguity of ASCII Numeric Base* See <https://pds-jira.jpl.nasa.gov/browse/CCB-165>

Todd added a comment in jira. The comment says: "I suggest changing the term 'non-negative integer' to 'unsigned integer'. The reason is that 'non-negative' implies that there is a sign bit which is never set, whereas 'unsigned' means that there is no sign bit. Using the term 'unsigned integer' more accurately describes how to interpret the bits."

Todd is not on the call now. Someone at PPI will try to get him to call in.

We will move on to CCB-164 for now.

CCB-164 - Display Settings not required for images See <https://pds-jira.jpl.nasa.gov/browse/CCB-164>

This may take some time because an alternative implementation is being suggested.

The suggestion is that since there's already a Display Settings class in IM 1.6.0.0 - we could promote the one in the Display DD back up to common. Unaware of any conflicts for if this adds requirements. It's easier if it's in common. May remove the need for a Display DD. Classes that display settings call would also be promoted.

This was deprecated in common because it was going to be in the Display DD. We consciously decided to do this. Getting rid of it wouldn't be a good idea. It's kicking the can down the road.

Back to CCB-165

Last week we agreed to ASCII numeric base being a non-negative integer. The change was made in the SCR - would change the DD and SR - then Todd's comment was made that a non-negative could imply a signed bit set to zero. Wondered if anyone has any comment on this. Think that reading the description non-negative integer in base 2 - that you would not have a signed bit - can represent the bits - an

integer in base 2 - in this case could have signed... (interrupted) ~ Not a hardware format.

~ Thought non-negative integer not a bit pattern.

Not having listened to the discussion - just reading definitions - sees distinction. Not sure this is the right phrasing. Need to convey all are part of the value - unsigned.

~ Aren't bits. The data type is ASCII String that represents a binary number. Can be any binary number you want to represent in ASCII characters. A generic that can be used for ASCII string that represents binary - only allowed unsigned.

~ The definition reads ASCII representation of a non-negative integer.

~ Yeah, nothing to do with bits.

The character zero - this data type only knows 0 and 1. No signs. Unsigned is appropriate for this and base 8, 16 too. Not bit patterns.

Question: So last time we decided on non-negative - is unsigned better?

Answer: Someone likes non-negative better.

~ But you aren't allowed to use a sign.

~ Someone likes the argument that the number doesn't necessarily have a limit on the bits, don't like the idea of bringing bits in.

Question: Someone is really curious why anyone would include a sign if a number is non-negative...?

Answer: If representing all bytes in an ASCII character string, then a set of characters for each value...

~ But you don't know what those are.

~ They represent their integer values.

~ Yes, but no reason to put leading zeros in a label. No fixed fields.

Question: If we put leading zeros - what changes? In either interpretation - what changes?

Another Question: Say I have an ASCII character string - and I want to parse - what am I putting it in? It should be unsigned. What data type?

~ Non-negative means I put it in a signed integer.

~ Someone is not sure about that. SR can't dictate that.

~ Thinking in programming terms.

This is not an attribute, it's a data type. An unsigned integer that should be interpreted as an x-long byte integer. (Note-taker missed some of what was said here.)

The comment has been explained. Was just offering a different perspective. We don't need to continue discussing it.

Author was really hoping for a consensus from all the players. The problem is he is not sure the comment is wrong.

~ Needs to be conveyed clearly in the documents - people may not interpret it as he did.

~ Guess we need another week delay to clarify the language. Maybe something other than non-negative integer.

Someone would like to have a vote - see if this is supported as written.

~ Someone else says this is not so contentious - likes the comment - wants to vote.

~ Yes, let's vote on non-negative versus unsigned.

~ Was gonna have the vote be on as written to see if we need to go back to the definition.

~ We intentionally chose non-negative integer. Not sure the comment is wrong, but wonders why we chose that.

~ To avoid signs.

~ Signed or unsigned brings bits to mind - this is a number, not a bit pattern. Unsure if unsigned is always positive.

Question: Why would we have a zero other than as a number zero - why would we have 0, 1, 2, 3... It's not an integer..?

Answer: If using a repetitive hardware bit pattern zero indicates a value not set.

~ Someone isn't sure about that. Would expect from the most common use in PDS3 that this data type would be in tables - encoded in hex.

~ Valid labels and tables.

~ Both - and regarding signs - no signs in front - not in the definition. Maybe the definition needs to say unsigned non-negative integer representation of ASCII character.

~ Very complicated.

~ Adding clarity so everyone interprets it the same way.

~ Best to give examples.

~ Examples are not standards. Say numeric base 2 class indicates an ASCII character representation of a non-negative unsigned integer in base 2. Must consist of the characters 0 and 1. You may not include a sign in this value.

~ Someone still doesn't understand why anyone would include a sign in a non-negative integer.

~ We need to make sure they don't.

~ Be explicit about all of the rules.

Question: Does the sentence - you may not use a sign in this value - clarify it?

Answer: Yes. Might phrase it better, but before this hadn't considered putting a sign.

The author does not feel we are ready to vote. Wants to wait until next week so he can adjust the wording so it's all explicit.

~ We can set a pattern.

~ The standard would define the pattern.

~ That works for label, not tables.

~ It should work from schematron.

****Action Item - Lev**** will try to clarify the SCR.

Question: Why? We'll get it perfect and then someday a data provider will want to know why they can't provide a sign.

Answer: The SR will tell them no signs.

~ Yes. It's dumb. But if eight ones could be a negative 127 I will have to say no, that's not allowed.

~ That's a negative integer.

Another Question: Why isn't that allowed?

Answer: Because it's not.

~ This opens up the MSB, LSB issue.

~ No, that's an interpretation.

Another Question: Say I want an inverted md5checksum - no negative sign is allowed - why not? Why does PDS prohibit non-negative?

Answer: We need a work group for this. Susie should be on it.

~ Answer from Susie: No. I was just anticipating that if we make a rule against something than someone will want to break it.

~ It wasn't allowed in PDS3.

~ Just wanted to understand why eight ones can't be -127.

Question: So, why can't eight ones be a negative integer?

Answer: Sounds like an oversight.

~ If you allow that then you interpret it as a bit pattern and you have to specify 2s compliment, MSB, LSB...

~ Please email the question to Lev. He will discuss it with Anne. (**Action Item**)

Question: Are we done with this one?

Answer: (Silence)

Todd hung up.

Back to CCB-164

We had a quick introduction. There was a proposal. EN's two cents is that the better approach is to

promote it to common - it simplifies the design and was there when Elizabeth was here.

Believe it was moved to Display DD when it became optional.

Someone doesn't remember the reason, but there was a reason based on MC discussion. The decision was made to put it in the Display DD.

~ Someone thought it was moved so IMG could work on it. Thinks we were having trouble getting things organized so we made the Display DD.

~ Someone is looking at emails from 2014 - trying to understand.

~ We should check the MC minutes.

~ Wish we had known to do that before now. Didn't know GEO was on the team.

~ Mark Showalter, Chris, someone from SBN - maybe Mike.

~ Mike was on Spectral.

~ The two were done together.

EN still prefers promoting it back to common.

Question: What about the Spectral DD?

Answer: Only worried about the Display DD right now.

~ Someone is against this.

~ Someone is trying to look at the 1600 xsd - can't find it.

~ Search for display underscore.

~ Display 2D...

Another Question: Where would it go? Inside array 2D? If we promote it - where would it go?

Answer: Baby steps.

~ Not a baby step - we have local internal reference to point to array - would need to remove that.

~ It's also not backwards compatible.

~ There is significant data that uses them as they are.

~ The idea of promoting things should be killed.

Question: If we promote this because it's required - are we going to promote more because it's required too? It's not the best argument. Concerned about that and with local internal reference too.

Another Question: What do we want to do? Sounds like the suggestion to promote it to common is not going well.

Answer: We need to understand the issue - more than in real time here.

This is definitely a non-backwards compatible change. Sounds like a non-starter. We should go back to what we were discussing last week - to the idea of changing the cardinality of local internal reference so it could appear multiple times.

Question: That's where we left off last time, right?

Answer: (Silence)

Local identifier should never have a cardinality of more than one, but the local internal reference could if there are multiple objects in the file. Currently, has a maximum value of one.

~ Yes, but could put it in the list of changes.

There are still 2 issues. The question of if we should promote this. I remember discussions about the concept so not offended by the idea. Seems no comments in jira since it was last updated.

Could send it to the CCB now - even if we decide to promote it in six months.

Question: Are people good with the updates to the SCR?

Answer: We said we were good last week because then we can depend on it being present when appropriate.

~ It has been TAed. Seems reasonable.

Another Question: Wanna vote? Are we ready?

Answer: (Silence)

The Vote - to send the SCR as written to the CCB ATMOS - Yes EN - Yes IMG - No GEO - No. (Side

comment - the main issue is having to repeat the local internal reference for each one. Will make really ugly labels.) ****PPI - Abstain**** (Tried to defer to folks who use this data - but not an allowed response. PPI says they don't want to put a thumb on the scale when they don't have the expertise and are not affected by the outcome.) ****SBN - Yes**** (Side comment - Yes, but share's GEO's concerns. Not against deferring for a week.) ****Rings - No**** (Side comment - voting No since SBN voted Yes ~ This is politics ~ Welcome to America. Rings wants the week.)

Okay - we get another week. Attempt will be made to fix it. Would like Steve to look at it. CC Ron and Sean. (****Action Item - Anne****)

CCB 166 - Deprecate bit mask from IM for new sample bits attribute

Jordan isn't here today. Will put this aside for now.

CCB-162 - Move <md5 checksum> from Object Statistics to Tagged Digital Object

See <https://pds-jira.jpl.nasa.gov/browse/CCB-162>

Md5 checksum is in the object statistics. A bad place for it because it's not an object statistic. It's also allowed in file - would remove and add it to tagged digital object and rewrite the definition so it can be used for files and digital objects that aren't contiguous files.

Someone thought the issue was because digital object is an abstract class without inherited attributes, but Steve thinks it can do it - leaning towards leaving it in file, adding to byte stream. Steve reported to him that both could have big impact - need to be prototyped before implementing.

Question: Impact?

Answer: Unsure.

~ Certainly on software.

Another Question: No TA yet?

Answer: No.

We need to have Steve and Sean's opinions of the two options.

~ Want to understand the impact. Doesn't understand the concern. Sounds drastic.

Steve's suggestion that it needs to be prototyped was a quick reaction. Recommends that there's a TA on the two options to see the impacts.

We are running out of time for the next release.

~ Two weeks ago.

Question: So, this would go in tagged digital object?

Answer: Optional.

Another Question: So, when it's implemented - specify where it goes?

Answer: Need to be careful of what you consider a tagged digital object.

Another Question: Where in the label would it go?

Answer: Good Question.

~ Tagged digital object is ancestor class for file and byte stream. Used to create the hierarchy, inheritance. Schema will sort inherited attributes first.

~ Okay. Ugly.

~ Advantage to putting it in byte stream.

~ Within any class can indicate the order. Similar for table.

Question: So, Ron should email Steve and Sean to respond with the impacts of the two possibilities?

Question: Anything else? Seems like next week the agenda will be like this one - other than the SCRs that are being withdrawn.

