Title: Conceptual Design Review	***Authors***: Treacy, Kern	6/4/2018
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Science Ready Data Products

Conceptual Design Review

Project 530

PREPARED BY	**ORGANIZATION**
Bob Treacy	NRAO, PMD
Jeffrey Kern	NRAO, SRDP

APPROVALS	**ORGANIZATION**	**SIGNATURE**
Bruce Berriman	Cal Tech – IPAC Sr. Scientist SRDP CoDR Chair (External)	
Lewis Ball	NRAO Assistant Director Science Support and Research	
Jeffrey Kern	NRAO Project Director Science Ready Data Products	
Robert Treacy	NRAO Project Manager Science Ready Data Products	

Change Record

VERSION	DATE	REASON
0.01	9/6/2017	Initial Draft
0.02	12/4/2017	assigned doc number, added SRDP Doc numbers, DMS docs
1.0	4/13/2018	Final version prior to review commencement.
2.0	5/21/2018	Complete Sections 2.4, App A, and App B, revised Section 5.4.2
3.0	6/4/2018	Document versions got out of sync between team and panel, merged panel Sections 2.5 Summary of Findings and Section 6 Review Outcome into current version of plan, edited Sec 2.5, Project Management Item 2 to change "staff" to "scientific staff", added Appendix B to include the history of RIDs received

Table of Contents

1. Purpose

This document encapsulates the full lifecycle of the Conceptual Design Review (CoDR) for the Science Ready Data Products (SRDP) project. The document is intended to be updated and modified throughout the review process, such that when complete it will serve as a record of the review process, outcome, and project response.

The structure of this review is somewhat unusual, in that the committee is requested to review both the project and the primary supplier to the project, NRAO's Data Management and Software Department. Because both groups are internal to NRAO and will be working closely throughout the project, reviewing the two groups' planning and processes separately would be inefficient and much less effective.

2. Executive Summary

2.1 Charge

This review is carried out after the Stakeholder Requirements Review and uses those requirements as the high-level definition of the project scope. The review committee is charged by the NRAO director to evaluate the readiness of the SRDP project to exit from the project initiation phase and begin the first wave of design and implementation. To carry out this charge the review committee should evaluate the project by responding to the following questions:

Project Management:

1. Are the objectives and scope of the project well defined?
2. Is the team organized and staffed to successfully complete the first delivery cycle? Have the organizational interfaces been defined, are roles and responsibilities clearly allocated?
3. Has the project identified all major risks? Is the risk management plan appropriate? Does the project have suitable processes in place to address issues that arise between different groups within SRDP?
4. Are the preliminary cost and schedule reasonable to achieve the planned scope?
5. Are the metrics for measuring project performance effective?
6. Does the project have an effective process for managing the definition, verification, and validation of the requirements?

Technical Scope:

7. Do the system functional architecture and concept of operations address the stakeholder requirements?
8. Have all technical interfaces been identified?
9. Have key technology choices and suitable candidates been identified? Where a selection has already been made are the choices properly motivated and appropriate?
10. Are processes in place to provide reasonable assurance that technical deliveries will be met?

Overall Readiness:

11. Is the project sufficiently mature to begin the first wave of implementation?

2.2 The Committee

The membership of the review committee is:

- Bruce Berriman (chair)
- Ian Evans
- Tracy Clarke
- Chris Wilson

2.3 Key Project Participants

The following individuals are considered key participants affiliated with the project:

- Jeff Kern (SRDP Project Director)
- Morgan Griffith (Software Group Lead)
- Bob Treacy (SRDP Project Manager)
- Lewis Ball (Assistant Director Science Support and Research; Project Sponsor)
- Brian Glendenning (Assistant Director Data Management and Software)
- Rafael Hiriart (NRAO Software Architect)
- Tony Beasley (Director NRAO)
- Joe Pesce (NRAO Program Officer, NSF)

2.4 Schedule

- 2/23/2018 Committee Chair accepts appointment
- 4/24/2018 Complete document set available for review
- 5/10/2018 5/11/2018 Meeting
- 6/01/2018 Final report from Review Committee due
- 6/29/2018 SRDP Director response to Review Committee recommendations due

2.5 Summary of Findings

The Committee thanks the SRDP team for providing positive responses to the 149 RIDs identified before the meeting, for the clear presentations during the review, and for the efficient organization of the meeting. These activities enabled the Committee to assess the project in depth. The Committee is responding below to each item in the charge given in Section 2.1.

Two of our concerns at the start of the meeting were the commitment of the Observatory to the SRDP project, and how well it exploited existing capabilities, infrastructure and processes at the NRAO. The former issue was addressed by the remarks of the NRAO Director, and the latter by the presentation of the Project Manager at the beginning of the meeting. The Committee recommends that the SRDP project prepare a two-page summary document that explains, for external readers, the context of the SRDP within the greater NRAO. This document should emphasize the Observatory's commitment, describe the objectives of the project, and explain how the project will exploit mature capabilities, infrastructure and processes in place at the NRAO.

Project Management

1. Are the objectives and scope of the project well defined?

The objectives are well defined, and the Committee was impressed by the Observatory's commitment to them. The Committee was, however, concerned that the scope may be too ambitious on the project timescale proposed, especially given the uncertainties expressed over how fast project resources will be consumed. Accordingly, the Committee recommends the project hold a Critical Design Review, with external reviewers, to be held after Rolling Wave 1 is completed. Such timing will allow the project to reassess deliverables, schedules and processes after practical experience with delivery of products.

2. Is the team organized and staffed to successfully complete the first delivery cycle? Have the organizational interfaces been defined, are roles and responsibilities clearly allocated?

Our primary staffing concern is that there is too few scientific staff from VLA (1.75 FTE) assigned to the SRDP, which may have substantial impact on project deliverables. The organizational interfaces are defined, but the Committee expressed concern over how well they will all work in practice. Consequently, the Committee recommends that the team treat Rolling Wave 1 as a pilot project to develop practical experience with the interfaces and revise them as needed. In addition, the pilot project will allow the SRDP to better quantify the costs of software development and product delivery, and of integration into operations. These items, when quantified and bolstered by the benefit of experience, will put the project in a much better position to plan subsequent waves, and should be a critical part of the CDR.

3. Has the project identified all major risks? Is the risk management plan appropriate? Does the project have suitable processes in place to address issues that arise between different groups within SRDP?

The risk management plan is appropriate. The risks are not complete, but are as thoroughly identified as could be expected at his stage of the project. The team is aware of risk areas, and the Committee is confident that risks will be managed thoroughly. The Committee recommends that the team identifies risks on the rolling wave horizons, and formally defines lines of authority needed to resolve issues between groups.

4. Are the preliminary cost and schedule reasonable to achieve the planned scope?

The Committee is concerned that the planned scope is too ambitious for the project timescale. To manage the scope, the Committee recommends that the project define a project level Minimum Viable Produce (MVP) and a Basis of Effort (BoE). The MVP will provide focus for project deliverables and will inform the development of a BoE.

The Committee is also concerned that there is inadequate schedule margin in the first year, given that the project should assess the efficiency of its processes and project interfaces, and assess its development and operations costs as well as deliver a useful, high quality product. The project should therefore consider an 18-month period for Rolling Wave 1.

5. Are the metrics for measuring project performance effective?

The metrics defined in SEMP will provide good long-term measurements of effectiveness. The project should consider how to develop short-term metrics, but the committee recognizes that this is difficult. Possible examples are attendance at workshops, and the response to restoring calibrated UV data (such as the number of requests).

6. Does the project have an effective process for managing the definition, verification, and validation of the requirements?

The SRDP project has put in place a rigorous process for the complex task of collecting and organizing requirements from the many stakeholders, for providing traceability of the requirements, for assessing the requirements within the Rolling Wave schedule, and for resolving such disputes as may arise.

Technical Scope

7. Do the system functional architecture and concept of operations address the stakeholder requirements?

The functional architecture and operations concept effectively address stakeholder requirements. The Committee recommends that the project improve the usability of the weblog for non-specialists, and should establish a Focus Group to specify the improvements, and seek the endorsement of the User Group.

8. Have all technical interfaces been identified?

The interfaces have been identified. The Committee's concern is how well they will work, and this is one of the reasons for the recommendation to treat Rolling Wave I as a pilot project. In particular, the interfaces to the VLA and ALMA data sets should merit particular attention.

9. Have key technology choices and suitable candidates been identified? Where a selection has already been made are the choices properly motivated and appropriate?

The committee endorses the use of existing validated and stable technologies.

10. Are processes in place to provide reasonable assurance that technical deliveries will be met?

Defining the Minimum Viable Product (MVP) will be a major step in assuring that the project meets its technical deliveries, and the Rolling Wave I pilot project will shake out the project processes. We suggest you consider how long-term technology choices will be managed.

Overall Readiness

11. Is the project sufficiently mature to begin the first wave of implementation?

The Committee is confident that the project is mature enough to begin development. We recommend that you treat Rolling Wave I as a pilot project and on its completion hold a CDR with external reviewers. This approach will give you greater confidence that you will effectively manage cost, schedule, interfaces, scope etc. beyond Rolling Wave 1. The Committee also recommends that the project engage its potential user base as early as is feasible. For example, end-user participation in evaluation and testing; community workshops, presentations and a workshop at AAS meetings.

Summary of Recommendations

1. Provide a two-page summary document providing context for external readers. This document should emphasize the Observatory's commitment, describe the objectives, and explain how the project will exploit existing capabilities, infrastructure and processes. A list of these items can be provided in an Appendix.
2. On completion of Rolling Wave 1, hold a CDR with external reviewers.
3. Treat Rolling Wave I as a pilot project to understand the management systems, interfaces and revise as needed.
4. Identify risks on the rolling wave horizons.
5. Formally define lines of authority to resolve issues between groups
6. Provide project level MVP and BoE.
7. Improve the usability of the weblog.
8. Engage user community. We suggest the following example activities: end-user participation in evaluation and testing; community workshops, presentations and workshops at AAS meetings.,

Summary of Conclusions

1. Creation of SRDP will be of great value to the community, maximize the scientific exploitation of NRAO's data sets, and expand the user base.
2. The Committee endorses the project.
   The Committee confident that you have the resources and skill to make this project a long-term success.

3. SRDP Background

The Science Ready Data Products project is an NRAO initiative to maximize the scientific impact of the telescopes operated by the NRAO on behalf of the National Science Foundation. The project plans to accomplish this by:

- Allowing users to focus more effort on scientific analysis and less on data processing.
- Decreasing barriers to entry for the non-radio astronomy community.
- Curating an archive of science quality images and products in addition to the traditional raw data products.

Delivery of science ready products from the observatory is a profound shift in the relationship between the observatory and our user community. There is considerable uncertainty associated with the detailed system requirements, we anticipate them evolving as both the observatory and the user community gain experience. To properly manage this uncertainty the project has selected a rolling wave management paradigm, with system and detailed requirements being defined with each subsequent wave of implementation and delivery.

The SRDP project has several NRAO precursor projects from which to draw experience and expertise. ALMA delivers science quality calibration for all standard mode projects. ALMA also delivers pipeline generated images, although not all of the delivered images are of science quality. The VLA also has a calibration pipeline, providing calibration information for all science projects. The VLA pipeline currently does not provide science quality calibration, primarily due to lack of effort for quality assurance. Finally, the VLA Sky Survey has pipelines producing science quality calibration and imaging, although for the specialized observing strategy of the survey.

This review takes place prior to the first wave of the SRDP project. The goal of the review is to provide validation to NRAO management as well as the NSF that the project has properly defined scope, an architecture and concept of operations that addresses that scope, and sufficient processes and organization in place to deliver the capabilities to the end user.

4. Review materials

- 530-SRDP-001-MGMT Project Charter
- 530-SRDP-009-MGMT Lifecycle Phases and Concepts
- 530-SRDP-032-MGMT Project Scope Statement

- 530-SRDP-003-MGMT Project Management Plan
  - 530-SRDP-005-MGMT Stakeholder Register
  - 530-SRDP-008-MGMT Responsibility Matrix
  - 530-SRDP-018-MGMT Schedule
  - 530-SRDP-006-MGMT Risk Register
  - 530-SRDP-026-MGMT Cost Management Plan
  - 530-SRDP-019-MGMT Cost Model

- 530-SRDP-010-MGMT System Engineering Management Plan
  - 530-SRDP-012-HEUR SRDP Committee Terms of Reference
  - 530-SRDP-020-MGMT SRDP Requirements Verification and Traceability Matrix
- 530-SRDP-014-MGMT System Concept[†]
- 530-SRDP-015-MGMT Stakeholder Requirements

DMS Documents:

[†] Although an operations concept is included as part of the System Concept, and preliminary budget implications are included in the cost model the detailed operations plan has not yet been developed. Comments from the committee on operations are welcome, but formal review of the operations plan is out of scope for this review.

- DMS Work Management Plan for SRDP
- DMS Software Development Processes
- SRDP Functional Architecture

5. Review Logistics

5.1 Methodology

To best utilize the time and effort invested by the committee and the project personnel, prior to the Review Meeting, review item discrepancies (RID) are identified by the committee members based on the submitted review package. RIDs are approved by the committee chair and sent to the project team for comment. Approximately one week prior to the review meeting RIDs which have not reached resolution are identified by the review committee chair and placed on the agenda for the Review meeting.

This methodology facilitates iteration between the review panel and the project prior to the in-person meeting. During these interactions misunderstandings and non-controversial findings can be dealt with, allowing the valuable time of the Review Meeting to focus on discussion of critical issues or disagreements. The standard RID workflow adopted from (ECSSS-M-ST-10-01C –Organization and Conduct of Reviews; 15 November 2008) is shown in Figure 1.

The Review Meeting should focus on presentations and discussions designed to bring closure to open discrepancies (RID). We anticipate that this this meeting will be one and one half days, time should be provided for discussion between the committee and the project members. Each working session (or day) shall end with a restricted meeting of the Review Committee during which each member shall debrief on the status of the problems identified.

For questions which cannot be answered prior to or during the meeting, 'Action Items' shall be defined including the due date and organization responsible for the performance of the action. Any Action Item shall be identified as critical or not. Action items and RIDs shall be reviewed prior to the end of the meeting.

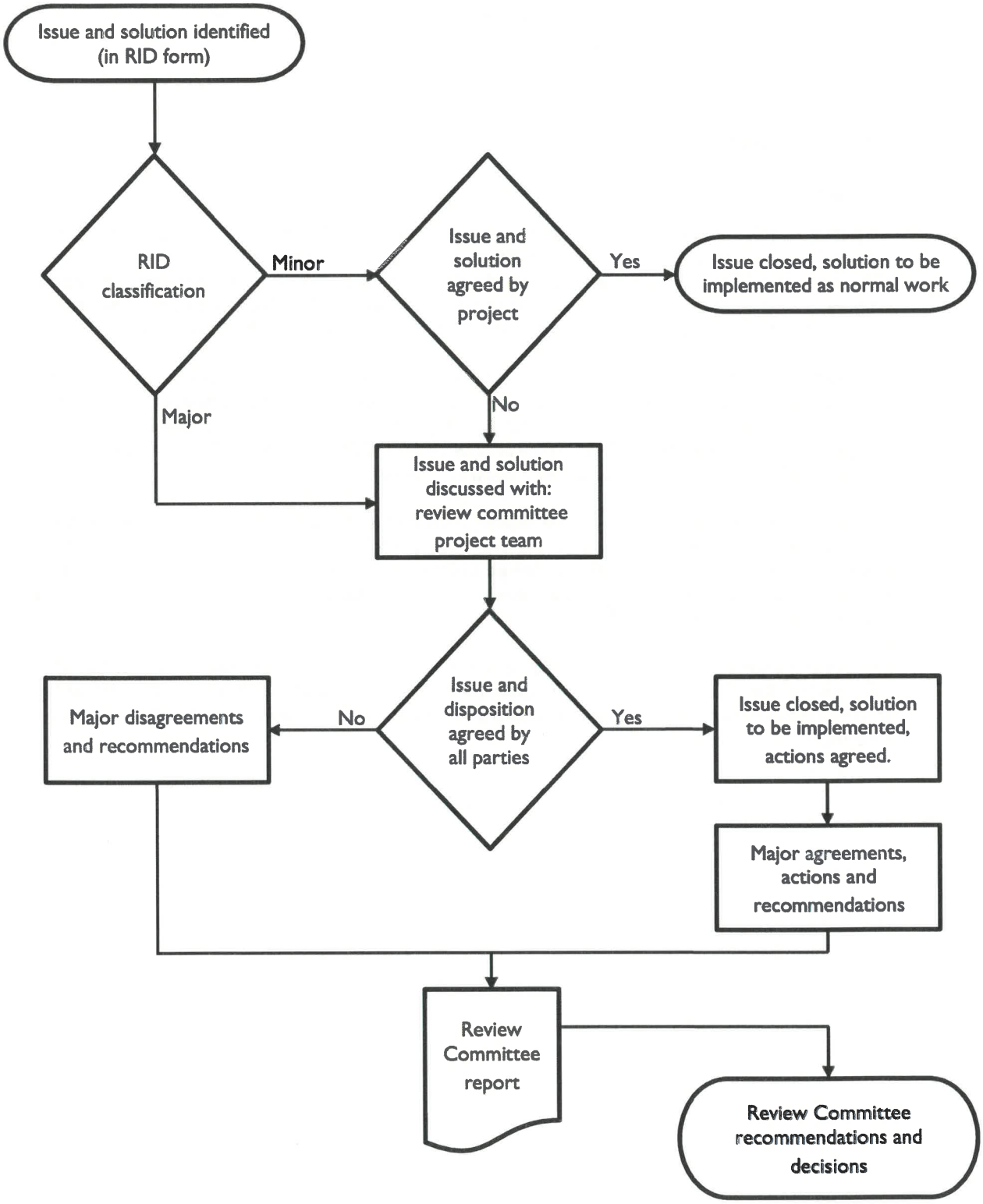

Figure 1: The standard RID workflow.

5.1.1 Responsibilities of the Committee

The Review Committee Chair shall:

- Chair the review meeting;
- Propose an agenda for the review meeting;
- Manage the activities of the Review Committee;
- Verify that the submitted documentation corresponds to the objectives of the review;
- Review Project Team responses to RIDs.

The Review Committee members shall, under the authority of the Review Committee Chair:

- Review the submitted documentation;
- Identify problems or request explanations by means of RIDs;
- Participate in RID close-out activities, including classification of unresolved problems as being major or minor;
- Prepare recommendations when the Project Team response to RID is not considered satisfactory; and
- Prepare the final review report (this document), including recommendations.

5.2 Implementation

The RID process described above is implemented using the NRAO instance of the Atlassian Jira package (open-jira.nrao.edu). The package is used to track and mediate communication on the review items prior to the Review Meeting, as well as after-review actions recommended by the committee.

Figure 2 shows the Jira workflow for review items. Members of the review committee open discrepancies, supplying the description of the discrepancy, and suggested solution. Discrepancies can be judged as major or minor, as differentiated by the workflow in Figure 1 by the reporter. The SRDP Project Manager will review the RIDs for duplication and assign each RID to the appropriate party, transitioning the issue to the "In Progress" state.

Once the project has prepared a suitable response the ticket is transitioned to the "In Review" state and returned to the original reporter.

At this point one of three actions may be taken:

- If the reviewer is satisfied with the project response and no further action is required the ticket should be placed in the "Done" state.
- If further feedback from the project is required, the state may be returned to the "In Progress" state.

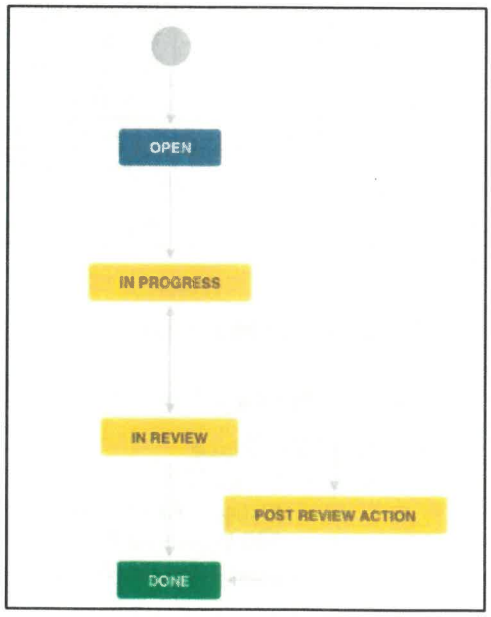

Figure 2: Jira implementation of the RID workflow.

- If an action is to be completed after the review meeting, the ticket may be set to "Post Review Action" with a clear description of the action to be completed and a due date for the action to be completed.

The completion of the review is defined as resolution of all major RIDs and critical action items as listed Appendix A.

5.3 Detailed Review Schedule

The following is the activity timeline for this review. T0 is the date for the meeting of the Review Committee.

Time	Activity	Responsible
Feb. 23	Appointment of review committee chair.	NRAO Director
	Definition of a global review schedule and the location where the review will take place.	Committee chair
March 22	Selection of the Review Committee Members	NRAO Director / Committee chair
March 29	Definition of review data package	Project Director
April 16-April 30	Collection and distribution of review data package to Review Committee Members and briefing of the Committee Members on the current status.	Project Manager / Project Director
	Review of data package, preparation, and submittal to the committee chair of queries (RID) on areas requiring further clarification.	Committee Members
	Response to submitted queries (RID) provided to the Committee members.	Project Team
April 30 – May 10	Review of unresolved queries (RID) and preparation of Review Meeting agenda.	Committee chair
	Preparation of presentation material	Project Team
May 10-11	Review Meeting	Committee chair
May 18	Completion of Appendix A and B of this document,	Project Manager
May 25	Completion of the Review Report (this document) and distribution to meeting stakeholders.	Committee chair

5.4 Review Meeting

5.4.1 Meeting Logistics

Date and Place

Venue: Room 230
National Radio Astronomy Observatory Headquarters
520 Edgemont Road
Charlottesville VA 22903

Date: May 10th and 11th 2018
Time: 8:30-17:45 (EDT) May 10
8:30-12:30 (EDT) May 11

Travel Arrangements
NRAO will pay for accommodation, air travel, ground transportation, and subsistence for the external members of the SRDP design review committee in accord with the NRAO travel policy. Committee members are welcome to make their own travel arrangements or to contact Jessica Utley (jutley@nrao.edu) for assistance.

The most convenient airport is the Charlottesville Albemarle (CHO) airport. NRAO can only reimburse for non-refundable, coach class air fares. If you are traveling internationally, please note that you must fly on a U.S. flag carrier in order to be reimbursed. If you require a cash advance to purchase airfare or would prefer for NRAO to make the reservation, please contact Jessica Utley.

A block of rooms have been reserved at Hyatt Place Charlottesville. Please send Jessica your expected arrival and departure dates, and she will reserve a room in this block for you. If you would like NRAO to reserve a rental car, please contact Jessica Utley with your flight information. If you prefer, you may book your own rental car using your preferred provider.

Committee members will receive a reimbursement for daily per diem (at GSA rates), minus any meals provided, to cover food and incidentals.

5.4.2 Agenda

Day 1	
8:30-9:00	Executive Session
9:00-9:15	Welcome from NRAO Director
9:15-10:30	Context of SRDP within NRAO
10:30-10:45	Coffee
10:45-12:30	Requirements
12:30-1:30	Lunch
13:30-15:15	Cost Model
15:15-15:30	Coffee
15:30-17:00	Implementation
17:00-17:45	Committee Executive Session
Day 2	
8:30-9:30	Topics from the Committee
9:30-10:30	Architecture
9:30-11:30	Committee Executive Session
11:30-12:30	Initial Findings from Committee

5.5 Contact Details

For questions or support please contact the SRDP Project Office:

SRDP Project Manager
Bob Treacy
Office: +1 434-296-0274

Email: rtreacy@nrao.edu
Administrative Support (logistics)
Jessica Utley
Office: +1 434-296-0237
Email: jutley@nrao.edu

Project Director
Jeff Kern
Office: +1 434-296-0250
Email: jkern@nrao.edu

6. Review Outcome:

The Committee assigns a readiness rating of "2. Conditional." The Committee is unanimous in its view that the project is ready to begin development, with the technical expertise to deliver products and with the backing of the NRAO to assure success. The Committee's primary concerns are that the planned scope may exceed resources and that there was no definition of a set of deliverables that would be expected to satisfy users. These concerns can, however, be successfully addressed in the former case by treating Rolling Wave 1 as a Pilot Project, and in the latter case by defining a Minimum Viable Product for the Project. At the completion of Rolling Wave 1, the Committee recommends the project hold a Critical Design Review to assess the project after practical experience with managing the project resources, interfaces and procedures.

Appendix A: Post Review Actions

Issue key	Summary	Reporter
SRDP-6	Trigger for Batch Recalibration	rtreacy
SRDP-15	Are there missing documents?	bberrima
SRDP-18	Operations Plan	tclarke
SRDP-26	Clarification on 'Charged User Processing"	tclarke
SRDP-27	Rolling wave vs agile	bberrima
SRDP-28	Risk management and rolling waves	bberrima
SRDP-30	Representation of User Community	bberrima
SRDP-33	priority of individual Use Cases	cwilson
SRDP-35	Have there been prototyping efforts?	bberrima
SRDP-36	UC02-0002 Standard Imaging	cwilson
SRDP-37	UC02-0003 Standard Imaging	cwilson
SRDP-39	UC02-00011 Standard Imaging	cwilson
SRDP-41	Contingency planning	bberrima
SRDP-42	UC04-0014 Archive Use	cwilson
SRDP-44	UC04-00149Archive Use	cwilson
SRDP-45	role of Architect	cwilson
SRDP-48	Information on processing	bberrima
SRDP-54	End-to-end project flow	bberrima
SRDP-55	Question on stakeholder requirements table	bberrima
SRDP-58	User documentation	bberrima
SRDP-67	excluded products not clear	cwilson
SRDP-71	recalibration not stored in archive	cwilson
SRDP-81	experience of SRDP-related systems at ALMA	cwilson
SRDP-85	archival use not clearly included	cwilson
SRDP-104	Archive Use Case - need for a suitable on-line viewer	cwilson
SRDP-121	How SRDP fits into NRAO	bberrima
SRDP-122	Concerns about cost model	bberrima
SRDP-124	Questions on architecture model and related cost questions	bberrima
SRDP-125	Data Product and Data Process Quality Management	tclarke
SRDP-129	Define project-level (L0) MVP and implementation timescale	ievans
SRDP-130	Cost Management Plan should reference a robust BoE	ievans
SRDP-132	Project level I&T plan and QA plan not present in review package	ievans
SRDP-135	Large Projects QA quality	ievans
SRDP-136	SRDP non-functional requirements	ievans
SRDP-143	Data Product Quality Management	tclarke

Appendix B: RID Detail Report

1.1.1 [SRDP-6] Trigger for Batch Recalibration Created: 22/Mar/18 Updated: 08/May/18

Status:	Post Review Action
Project:	Science Ready Data Products
Component/s:	SRDP-014-MGMT: System Concept
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Robert Treacy	**Assignee:**	Robert Treacy
Resolution:	Unresolved	**Votes:**	0
Labels:	SRDP_CoDR		

Suggested Solution:	Suggest to reword as follows: " Since no external user-trigger is involved, a helpdesk ticket should not be created, the recalibration process shall be automatically triggered with a similar mechanism as for Standard Calibration in Sec 3.1 para 2. The recalibration process should be managed through the workflow system..."

Description

See SRDP System Concept Document Sec 3.6 para 11 Batch Recalibration " Since no external user-trigger is involved, a helpdesk ticket is should not be created. The recalibration process should be managed through the workflow system..."
The phrase " a helpdesk ticket is should not be created" is conflicted and leaves the trigger undefined.

Comments

Comment by Jeff Kern [04/May/18]

I agree with your wording, lets update the documents as suggested.

Comment by Robert Treacy [08/May/18]

The System Concept Document has been updated to reflect the recommended wording.

1.1.2 [SRDP-8] Absence of Acronym List Created: 23/Apr/18 Updated: 04/May/18 Resolved: 04/May/18

Status:	Done
Project:	Science Ready Data Products
Component/s:	General Issues (non-document specific)
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Bruce Berriman	**Assignee:**	Bruce Berriman
Resolution:	Done	**Votes:**	0
Labels:	SRDP_CoDR		

Suggested Solution:	Recommend having a separate, common document for all the review material documents, as many of the acronyms are repeated across documents,

Description

There does not appear to be an acronym list or a glossary for any of the documents.

Comments

Comment by Christine Wilson [23/Apr/18]

I concur - I have already come across some undefined acronyms that I haven't been able to figure out

Comment by Robert Treacy [24/Apr/18]

Yes, I apologize for the confusion here. This one fell through the cracks. We have traditionally kept acronyms in the document where they are used. We then moved to a separate document at the project level and pulled the tables from each of the documents so we could consolidate for easier maintenance, since it is a growing list. In the middle of that change, we took another turn to make it an observatory level document and that is still in progress. I posted a draft this morning that should be suitable for this review. This is a WIP, so I'll keep this ticket open in case you find any that were missed,

Comment by Robert Treacy [02/May/18]

A working draft with an acronym list and lexicon has been provided. An observatory wide acronym list and lexicon is in progress. The posted list should cover what is needed for the review until the observatory level documents are drafted.

1.1.3 [SRDP-9] Interface diagrams Created: 23/Apr/18 Updated: 11/May/18 Resolved: 11/May/18

Status:	Done
Project:	Science Ready Data Products
Component/s:	General Issues (non-document specific)
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Bruce Berriman	**Assignee:**	Bruce Berriman
Resolution:	Done	**Votes:**	0
Labels:	SRDP_CoDR, SRDP_CoDR_Context		

Suggested Solution:	Create diagram(s)

Description

I think it would be help clarity if there were a diagram (or set of diagrams) showing the human interfaces - I tried to construct one as I began reading, but it got messy quite quickly. Such diagrams would help us understand whether these interfaces are in fact complete.
I hope I have not missed such diagrams anywhere. If I have, may I recommend publishing them as a separate document? It is good to have them at there fingertips when reviewing the material.

Comments

Comment by Robert Treacy [24/Apr/18]

The Architecture Description document was posted this morning. It is in the DMS section, sorry it was late getting posted. We had somewhat of a delay getting the requirements to the architect. Have a look at that and see if there is enough interface description to clarify.

Comment by Bruce Berriman [24/Apr/18]

Terrific - thanks!

Comment by Robert Treacy [11/May/18]

the diagrams in the architecture document presented in the CoDR asatisfy this RID

1.1.4 [SRDP-10] Are there more documents we should have? Created: 23/Apr/18 Updated: 10/May/18 Resolved: 10/May/18

Status:	Done
Project:	Science Ready Data Products
Component/s:	General Issues (non-document specific), SRDP-010-MGMT: System Engineering Management Plan
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Christine Wilson	**Assignee:**	Robert Treacy
Resolution:	Done	**Votes:**	0
Labels:	SRDP_CoDR, SRDP_CoDR_Context		

Page Number:	10
Suggested Solution:	Correct SE Management Plan to a) correctly reflect the name of the document as Stakeholder Requirements rather than L0. and b) clearly point out that the Roadmap is in the final section of the System Concept Document.

Description

Are there more documents that we should be looking at? The SE Management Plan refers to (1) a list of L0 requirements (2) an SRDP Road Map and Release Plan. These do not seem to be in our list of documents? They are supposed to be done by the end of the "initiation phase" which is what our review is about.

Comments

Comment by Jeff Kern [23/Apr/18]

Hello Chris,
The L0 requirements and the Stakeholder Requirements (which are submitted) are the same thing. The Road Map portion of the second document is included as the final section of the System Concept document. I think that the Release Plan is a holdover to the period before we adopted the rolling wave approach, as it doesn't actually make sense in the agile context. So the information is available but the titles and organization have changed.
My proposal would be to move this to an action item to correct SE Management Plan.

Comment by Christine Wilson [23/Apr/18]

Thanks, I had found L0 after I posted the comment. That action is OK with me.
You might consider in addition pointing out (in the relevant documents) that the Road Map is in the System Concept document. I was looking for it as a separate document (even though I had read the System Concept document earlier today, and made some notes on the Road Map, I had forgotten it was there).

Comment by Robert Treacy [24/Apr/18]

I posted two this morning:
Acronyms and Lexicon
Architectural Description
I think this should be everything now. We plan to break the Road Map out as a separate more detailed document following the review.

Comment by Robert Treacy [02/May/18]

An entry has been made in the project action item log to:

1. Resolve references to the Stakeholder Requirements (aka L0 Requirements) in the System Engineering Management Plan and other relevant documents for consistent use, based on the document title.
2. Identify the location of the SRDP Roadmap as in the System Concept document; update references in the System Engineering Management Plan and other relevant document

Comment by Christine Wilson [02/May/18]

carry out action items

Comment by Robert Treacy [07/May/18]

I made edits to the following documents:
System Concept Document - Added the SRDP Capability Roadmap to Section 1.2 Scope of Document
System Engineering Management Plan - Clarified purpose for Stakeholder Requirements Document in Sec 2.2 on the Requirements Hierarchy, clarified the location of the high level Roadmap as found in the System Concept Document in Section 3.1 SRDP Roadmap and Release Planning
Project Management Plan - Edits to Section 2 on Scope Management to clarify the relationship between the System Concept Document (narrative) and the Stakeholder Requirements Document (formatted as a requirements document) as they both reflect the L0 requirements. Also added the document reference in several places where the SRDP Capability Roadmap is mentioned.

Comment by Robert Treacy [10/May/18]

closed by committee consensus in CoDR

1.1.5 [SRDP-11] references to NSF cooperative agreement

Created: 23/Apr/18 Updated: 10/May/18 Resolved: 10/May/18

Status:	Done
Project:	Science Ready Data Products
Component/s:	General Issues (non-document specific), SRDP-003-MGMT: Project Management Plan, SRDP-014-MGMT: System Concept
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Christine Wilson	**Assignee:**	Robert Treacy
Resolution:	Done	**Votes:**	0
Labels:	SRDP_CoDR		

Suggested Solution:	Revise this phrase in all the documents where it occurs

Description

At least two of the documents refer to "NRAO's Cooperative Agreement with the NSF", which I think is not strictly correct, as it implies an agreement between NRAO and the NSF. The Cooperative Agreement to operate NRAO is between AUI and the NSF (as you can see in a press release here: https://public.nrao.edu/news/2016-cooperative-agreement/).
Sorry to be nit-picking, but as a member of the AUI Board of Trustees, the language catches me every time.

Comments

Comment by Jeff Kern [24/Apr/18]

You are of course correct, we have been sloppy with our language and will correct the documents to accurately reflect that the agreement is between NSF and AUI.

Comment by Christine Wilson [24/Apr/18]

Same language is also used in StakeholderRequirements document

Comment by Jeff Kern [24/Apr/18]

I think we will have to check all of the documents (as well as a few internal ones). I suspect it was in the original charter and has propagated everywhere from there.

Comment by Robert Treacy [02/May/18]

An entry has been made in the project action item log to review the document set and compile a list of documents where the NSF Cooperative Agreement is mis-stated as an agreement with NRAO and track updates to each document through change control, reflecting the agreement is with AUI.

Comment by Christine Wilson [02/May/18]

carry out proposed action item

Comment by Robert Treacy [02/May/18]

I have reviewed the document package posted on the Wiki, finding and correcting five instances using this statement (in the original files) :

- Project Charter
- Project Management Plan
- System Concept
- Stakeholder Requirements
- Requirements Committee Terms of Reference

Comment by Robert Treacy [10/May/18]

closed by committee consensus in CoDR

1.1.6 [SRDP-12] Request for clarity on scope Created: 24/Apr/18 Updated: 10/May/18 Resolved: 10/May/18

Status:	Done
Project:	Science Ready Data Products
Component/s:	SRDP-014-MGMT: System Concept
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Bruce Berriman	**Assignee:**	Bruce Berriman
Resolution:	Done	**Votes:**	0
Labels:	SRDP_CoDR, SRDP_CoDR_Context		

Page Number:	6
Suggested Solution:	Clarify both documents

Description

Section 2 gives the impression that the project will create collections of data sets via a rolling wave, and these will be available to the community. Yet Page 4 of the Project scope document talks about software as the deliverables, rather than data products. In fact, "Project Exclusions" lists persistent derived products. Sorry, but I am having some trouble parsing this information!

Comments

Comment by Jeff Kern [24/Apr/18]

Let me see if I can make this a bit clearer:
There are two aspects to the SRDP project:
The first is the development of a suite of tools that will be used to support the generation of products by the user. We will approach this using a rolling wave methodology, refining targets and requirements as the project progresses. This is the primary implementation portion of the project.
The second aspect is the development of operational processes and expertise (which we will do by actually executing them) to produce SRDP. This will be done throughout the project lifetime and beyond into standard operations after the SRDP project ends.
The comment in section 2.1 about excluded scope and "derived products" refers to products derived from the images. Things like moment maps, or cutouts that are derived from the primary products (calibrations and images) will not be persisted.
I think the fundamental clarification that is needed is to differentiate the SRDP-Tools from the SRD Products?

Comment by Tracy Clarke [24/Apr/18]

I keep coming back to trying to understand within the documentation the specifics of what the fundamental SRD products are for different phases of the project, how they are defined for each phase and what the specific QA process is? I understand that some of this will be developed with experience

and there are details scattered in documents discussing products but is there a simplified table where this is easily viewed?

Comment by Bruce Berriman [24/Apr/18]

Jeff - yes, your last sentence hits the nail on the head!
Tracy - yes, I am finding I have the same concern

Comment by Robert Treacy [10/May/18]

closed by committee consensus in CoDR

Comment by Robert Treacy [10/May/18]

Slide 7 of the CoDR Presentation on 'Context" describes that:
The project is doing two things at once. Producing the tools and processes (capability development) and using those to give feedback and produce products.

1.1.7 [SRDP-15] Are there missing documents? Created: 24/Apr/18 Updated: 11/May/18

Status:	Post Review Action
Project:	Science Ready Data Products
Component/s:	General Issues (non-document specific)
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Bruce Berriman	**Assignee:**	Morgan Griffith
Resolution:	Unresolved	**Votes:**	0
Labels:	SRDP_CoDR, SRDP_CoDR_Context		

Suggested Solution:	Create documents as needed

Description

The following documents are standard documents to include in software engineering plans, but are not included in this package:
WBS breakdown and definition
Test Plan
Maintenance Plan
Configuration Management Plan.
There are, for example, references to CM in e.g. Section 6 of the Project Management Plan, but fall short of a full CM plan.]
When development begins, will you be developing interface control specifications to manage there interface between ALMa and VLA data and the SRDP?

Comments

Comment by Robert Treacy [02/May/18]

WBS breakdown and definition – The purpose for a WBS and its usefulness within SRDP was discussed at great length. A WBS provides elemental baseline information for scope, duration, and cost; to build a bottom up estimate for the project baseline. Our SRDP initiative does not conform to a traditional waterfall methodology, but is constrained to a fixed spend rate and hybrid lifecycle that includes development, operations, maintenance, retirement of technical debt, and other recurring effort that is very difficult to capture in clearly delineated work packages. A decision was taken to accomplish the same goals through iterative release planning with the Requirements Hierarchy, Capability Roadmap, System Architecture, and constraints of the Cost Model. The combination of these elements ultimately define the SRDP deliverables. Cost and duration elements as they specifically associate with SRDP

deliverables proved to be too entangled within this hybrid environment to isolate with any accuracy. In light of this explanation, it may be helpful to review this strategy against the SRDP Lifecycle Document and the schedule management section in the Project Management Plan.

Test Plan – Complete validation of use cases at the stakeholder level (L0) is expected to be an ongoing process, as capability may be primitive in early release cycles, increasing fidelity over multiple cycles. The SySML architectural model will inform test plans needed to verify the L1 and L2 level requirements, which will be tracked by elemental association within the model's requirements management utility. Progress toward validating the L0 requirements will be tracked with the cumulative verification of L1 requirements, since these are coupled to a parent child relationship in the requirements fan-out. Test plans to include validation and verification will be written for each of the planning cycles based on the capability to be delivered in each cycle. The RVTM will be updated accordingly, as each cycle completes.

Maintenance Plan – Maintenance will be performed in the operations phase of the lifecycle. The SRDP Operations Plan is scheduled to be written when the Operations Manager position is filled, later this year. Initially, SRDP Operations will be distinct and managed as part of the project. At such time that maintenance for SRDP is well understood and suitable to integrate with observatory operations, it will evolve to become part of normal observatory operations.

Configuration Management Plan – The primary data interface is the Science Data Model (SDM), common to both ALMA and VLA. The Project Data Model is a secondary interface, largely common between the two telescopes as well. Existing prototypes already exercise these interfaces. SRDP use cases will inform necessary changes to the models and supporting tool sets. The system architecture is modeled in SySML, interface control specifications will be defined within this model as lower level system elements are designed.

Comment by Robert Treacy [11/May/18]

Action:
CM Plan - Incorporate the statements from the Context Presentation, slide 15 on CM into the DMSD document set
For reference:
WBS - The project decision to not use a WBS was discussed and accepted in CoDR
Test Plan - This is addressed in more detail in SRDP-132, followup is through that ticket
Maint - DMSD demonstrated to satisfaction of the panel this is a routine part of their operation under existing processes.

1.1.8 [SRDP-16] Project Scientist and Operations Manager Created: 24/Apr/18 Updated: 04/May/18 Resolved: 04/May/18

Status:	Done
Project:	Science Ready Data Products
Component/s:	SRDP-003-MGMT: Project Management Plan
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Tracy Clarke	**Assignee:**	Tracy Clarke
Resolution:	Done	**Votes:**	0
Labels:	SRDP_CoDR		

Page Number:	11
Suggested Solution:	Clarify status of Project Scientist and Operations Manager.

Description

Both the SRDP Project Scientist and SRDP Operations Manager will play critical roles in the project yet they are both listed as 'proposed' in Figure 2. What is the timeline for firm placements for these positions and are likely personnel currently tracking the initial development stage of the project?

Comments

Comment by Jeff Kern [24/Apr/18]

Both the project scientist and operations manager have been approved. Selection for the Project Scientist role is complete and an offer is currently pending. Recruitment for the Operations Manager position will start shortly, with the objective of having an individual in position before the end of the calendar year.
Likely internal candidates for the role of Operations Manager are aware of the projects progress.

1.1.9 [SRDP-18] Operations Plan Created: 24/Apr/18 Updated: 11/May/18

Status:	Post Review Action
Project:	Science Ready Data Products
Component/s:	None
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Tracy Clarke	**Assignee:**	Robert Treacy
Resolution:	Unresolved	**Votes:**	0
Labels:	SRDP_CoDR, SRDP_CoDR_CostModel		

Page Number:	6
Suggested Solution:	Clarify.

Description

The SRDP "Conceptual Design Review document footnote states that "an operations concept is included ... formal review of the operations plan is out of the scope for this review". When will an operations plan be completed and reviewed? How will the results of that review be integrated into the results of the CoDR? What is the reasoning behind separating that from the CoDR?

Comments

Comment by Christine Wilson [24/Apr/18]

I also noted the lack of an operations plan. Is there any estimate of the operations costs, or the number of FTEs likely to be needed in the operations phase? There are a lot of steps that require quality control by operations staff, and so I'm concerned the operations effort of the system could be more than the observatory can afford

Comment by Jeff Kern [25/Apr/18]

In the cost model and the cost management plan we have an estimate of the resources required for operations based on current ALMA and VLASS experience. I think there is a high uncertainty in this model, but it is based on our current best estimates.
Development of the operations plan necessarily required the system concept to have been developed. I note that we explicitly involved operations staff from ALMA and the VLA to ensure the operations concepts sketched in that that document are realistic. The transition to SRDP operations is about one year from now, paced by the need to have the tools developed in the first implementation cycle, and the competing priority of the VLASS operations. Hiring of the operations manager is scheduled for Q3 of CY-18, and the first responsibility will be development of a more detailed operations plan, incorporating the experience from ALMA cycle 5, and VLASS epoch 1.

Review (format TBD) of that plan will be conducted before SRDP capabilities are exposed through the Archive interface. Modifications to any of the documents presented here will use the project change control process.

Comment by Robert Treacy [11/May/18]

Add a discussion of the operations plan development to the PM plan.

1.1.10 [SRDP-26] Clarification on 'Charged User Processing" Created: 24/Apr/18 Updated: 11/May/18

Status:	Post Review Action
Project:	Science Ready Data Products
Component/s:	SRDP-014-MGMT: System Concept
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Tracy Clarke	**Assignee:**	Jeff Kern
Resolution:	Unresolved	**Votes:**	0
Labels:	SRDP_CoDR		

Page Number:	12
Suggested Solution:	Clarify potential implementation of Charged User Processing.

Description

Under resource management it states that supplemental processing may be obtained through a method that could pass charge back to the requesting user. I can imagine that this could be very complex for NRAO to manage financially and logistically. What users would be possibly bumped there, would they need to have an account with funds located somewhere? Has this concept been fleshed out beyond the brief description in this document?

Comments

Comment by Christine Wilson [24/Apr/18]

I also noticed this issue, which would need careful handling. It would be unfair to charge the 100th small user who just happened to request processing at a time when the system was overloaded. But it might be fair to negotiate in advance that a very large processing job would need a financial contribution by the team requesting it

Comment by Bruce Berriman [24/Apr/18]

Also noticed this. I can see disputes arising between groups and the NRAO as well - do you have conflict resolution methods in place?

Comment by Jeff Kern [25/Apr/18]

Let me start by saying that I and the committee responsible for the System Concept completely agree with the concerns you raise. This is included in the document so that the architect and system designers are aware of the possibility, but we hope to avoid this for routine processing.
Our discussion centered on using this for large archive projects and utilizing the NRAO cluster for the more heterogenous processing. As an example if a group decided that they wanted to re-reduce the entirety of the VLASS at some point in the future, that could completely saturate the resources of the NRAO cluster, so we would need to govern the rate at which they submit jobs to ensure continued

access for the rest of the community. If we had this facility they would be able to use say AWS to reprocess the data and make use of the much larger resource pool AWS provides, and as a single cohesive project seek funding to do this outside of the NRAO resources. We certainly do not see this as something where an arbitrary user would get shunted to AWS and then presented with a bill. The point that if we go down this road the policy will need to be very throughly thought through and socialized is well taken.

Comment by Tracy Clarke [06/May/18]

Careful consideration is needed including detailed documentation on when such an action would be taken and how it may be implemented, including the impact the community.

1.1.11 [SRDP-27] Rolling wave vs agile Created: 24/Apr/18 Updated: 11/May/18

Status:	Post Review Action
Project:	Science Ready Data Products
Component/s:	SRDP-003-MGMT: Project Management Plan
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Bruce Berriman	**Assignee:**	Robert Treacy
Resolution:	Unresolved	**Votes:**	0
Labels:	SRDP_CoDR, SRDP_CoDR_Implementation		

Page Number:	5
Suggested Solution:	I think clearer documentation will solved this

Description

Page 5 states that.

- Agile processes will be used to deliver the scope within DMS, therefore lower level requirements will be progressively elaborated throughout the lifecycle of the project, with oversight of scope provided by the SRDP Requirements committee, Project Scientist, and Project Manager. Rolling wave planning cycles will coincide with DMS software release cycles, such that the planned capability for a release cycle (as reflected in the SRDP Roadmap) results in the decomposition of requirements and planning packages sufficient to deliver the planned capability within the current planning horizon.

I think a rolling wave makes sense in the context of the delivery cycle that is set out in the schedule and as you learn more about what your customers need. The paragraph above states that DMS will use agile processes, which I take to mean (broadly speaking) lots of small, fast-turnaround deliveries.
How will the differences in the software delivery cadences, for want of a better word, be managed by the project? Would DMS perform lots of internal deliveries to arrive at the delivery needed for the SRDP rolling wave cycle?

Comments

Comment by Morgan Griffith [30/Apr/18]

Regarding DMS delivery of functionality - some tasks, such as UI development, lend themselves to a more agile approach, while others, such as infrastructure development are generally well managed as a set of defined tasks. We try to choose the approach most appropriate to the work and typically deliver releases to production at timeframes appropriate to operations.

For SRDP, the design process should identify capabilities to be delivered as part of a product set, i.e. in a particular "rolling wave." The timing of delivery may be different for the different teams, but with the goal of both delivering in the same wave, which covers a longer time period than a typical delivery period. An example of this could be a capability delivered by CASA and exposed to users through the archive reprocessing interface. They would both be scheduled in the same wave, and coordinated through the design process, so that the CASA capability would be delivered before it was included in the reprocessing interface. They won't necessarily be delivered at the same time, but they would be rolled into the same SRDP wave.
Perhaps a concise explanation of this is that the delivery iterations (agile or otherwise) will be shorter than the individual rolling waves and will be coordinated through the priority setting and design process. We will clarify this in the documentation.

Comment by Robert Treacy [11/May/18]

Update the PM Plan to make the distinction between the rolling wave process for requirements management and Agile processes for implementation, highlighting the flexibility in the application of these processes across teams that deliver to different goals and to different stakeholders.

1.1.12 [SRDP-28] Risk management and rolling waves Created: 24/Apr/18 Updated: 11/May/18

Status:	Post Review Action
Project:	Science Ready Data Products
Component/s:	SRDP-003-MGMT: Project Management Plan
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Bruce Berriman	**Assignee:**	Robert Treacy
Resolution:	Unresolved	**Votes:**	0
Labels:	SRDP_CoDR, SRDP_CoDR_Implementation		

Page Number:	5
Suggested Solution:	Develop rates plan

Description

Fist, let me make sure we mean the same thing by rolling wave. I take it to mean this nice definition in Wikipedia:

"Rolling-wave planning is the process of project planning in *waves* as the project proceeds and later details become clearer; similar to the techniques used in agile software development approaches like Scrum..[[1]]https://en.wikipedia.org/wiki/Rolling-wave_planning#cite_note-1]
Work to be done in the near term is based on high-level assumptions; also, high-level milestones are set. As the project progresses, the risks, assumptions, and milestones originally identified become more defined and reliable. One would use rolling-wave planning in an instance where there is an extremely tight schedule or timeline to adhere to; whereas more thorough planning would have placed the schedule into an unacceptable negative schedule variance."
On of the consequences with roiling waves is that they go hand in hand with management of risks. This document may explain the relation quite
well: http://www.sqpegconsulting.com/A%20Risk%20Perspective_Rolling%20Wave%20Planning%20is%20a%20Bet.pdf
I don't see the risk component of rolling wave addressed - there is a risk register, but I don't see a risk management document. If it's included in an existing doc, please send pointer.

Comments

Comment by Robert Treacy [04/May/18]

Yes, this is the same definition we are working to and your choice of the Goodpasture reference is interesting. The strategy we devised was heavily influenced by Goodpasture's text: Project Management the Agile Way. However, he only briefly mentions risk in his text, so the article is enlightening. Elaboration of a risk management plan was an oversight on our part, as we follow NRAO

Standard Practice. We will take an action to expand this section in the Project Management Plan to address this.
NRAO has adopted and documented risk management processes in Standard Operating Procedures (SOPs) at two levels, which we can make available if there is interest. Risk is managed within projects and also at the organizational level. The project management structure within NRAO typically follows the PMI definition of a weak to balanced matrix. This positions functional managers to contribute to project effort within their departmental processes, resource, risk, and contingency pools. The SRDP project has the additional complexity of an operational component, which most project management structures don't readily accommodate.
When the effort contributed to projects is through the functional manager, risk management and contingency is addressed within the context of their broader departmental process. Typically, projects managed under this arrangement address qualitative risk. Quantitative analysis that includes observatory level contingency is within the organizational risk process. SRDP is following the Project Risk Management SOP, which is reflected in the standard template where scoring allows for qualitative and quantitative analysis.
Deviation of implementation time scales from the anticipated baselines we choose to treat as a variance rather than a risk. The objective within SRDP is to maximize the attained scope within fixed cost and schedule. Through periodic delivery of products, achieved scope is readily visible to stakeholders and project velocity can be assessed.

Comment by Robert Treacy [11/May/18]

Provide a link to the NRAO SOPs for Risk, edit management plan to include a review and update to the risk register as part of planning process.
Include more detail on the risk process (i.e. who scores the risk register, how are risks managed, who decides to close, etc.)
Add a tab in the Risk Register with a legend to explain the fields and columns.

1.1.13 [SRDP-29] data management plan for large projects

Created: 24/Apr/18 Updated: 03/May/18 Resolved: 03/May/18

Status:	Done
Project:	Science Ready Data Products
Component/s:	SRDP-015-MGMT: SRDP Stakeholder Requirements
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Christine Wilson	**Assignee:**	Christine Wilson
Resolution:	Duplicate	**Votes:**	0
Labels:	SRDP_CoDR		

Issue Links:	**Duplicate**			
	duplicates	SRDP-60	Priority for Standard Imaging	In Review
Page Number:	9			
Suggested Solution:	a large project data management plan could be required only if thecalibration and/or imaging are not standard			

Description

I disagree that all large projects by default will require a data management plan. Some large projects may need standard calibration and imaging, and are simply observing a large number of individual targets. This is currently the case for ALMA large projects.

Comments

Comment by Jeff Kern [25/Apr/18]

I think that this is already a requirement both for ALMA and VLA. The objective is make sure that it has been thought about, and to increase the likelihood that the final products end up available for the community in the archive.
This is not intended to be an obsticle, I think a valid data management plan is "We will use the standard pipelines and data will be available through the NRAO and ALMA archive interfaces." However as you know currently ALMA is not producing images of all sources for large projects, so a statement like "We plan to use the NRAO SRDP interface to create standard pipeline images for all source-SPW combinations not provided by the standard ALMA processing." might need to be included at least in the short term.

Comment by Christine Wilson [02/May/18]

I think we may need to distinguish between a data management "plan" and actually carrying out the plan. My point is that when the data processing required for a large project is similar to that of N PI projects, the large project should be able to access the same resources as the N PIs. For example, a large program

to image 100 galaxies with ALMA taking 100 hours could require very standard calibration and imaging for each galaxy individually, and may not require anything "special" on the part of the large program team

Comment by Jeff Kern [02/May/18]

Sorry now that I understand what you mean, I think this is a duplicate of SRDP-60. Could you check if my response there is sufficient?

Comment by Christine Wilson [03/May/18]

with SRDP-60

1.1.14 [SRDP-30] Representation of User Community Created: 24/Apr/18 Updated: 11/May/18

Status:	Post Review Action
Project:	Science Ready Data Products
Component/s:	SRDP-005-MGMT: Stakeholder Register
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Bruce Berriman	**Assignee:**	Jeff Kern
Resolution:	Unresolved	**Votes:**	0
Labels:	SRDP_CoDR, SRDP_CoDR_Requirements		

Page Number:	7
Suggested Solution:	Review stakeholder interfaces

Description

The Radio-astronomy user community and and non-radio community are listed as stakeholders. I notice the entries for these two grips are blank. How will their interests be heard? The plan does call for their requirements to be integrated into level 0 requirements for each rolling wave. What, though, is the process whereby their input is solicited and assessed?
There are many stakeholders (including myself) whose interests have to be managed -it would be instructive to have them mapped on to a (human) interface diagram to show how the interact with the project (and that they have all been taken into account).

Comments

Comment by Robert Treacy [02/May/18]

We are using the NRAO Users Committee (UC) and CASA Users Committee (CUC) as proxies for the Radio community. These groups are serving as the external review for the System Concept (and therefore L0 requirements). Accessing the non-radio community is more difficult. For the requirement review, members of the UC and CUC reached out to their colleagues for comment.
For the past two years we have used the winter AAS to present the SRDP project. We also plan to use topical meetings to present the SRDP project and capabilities, Jeff Kern spoke related to this topic at ADASS and AstroInformatics this year and the Project scientist will target topical science meetings. We anticipate that as the project matures and we have concrete capabilities to demonstrate we will become better able to engage with this community.
The entry in the stakeholder register is intended to remind us of this class of stakeholder, even if we cannot put a name next to it for direct feedback. I have also made an entry in the project action log to add external stakeholders and associated venues to the communications section/table in the Project Management Plan.

Comment by Robert Treacy [02/May/18]

I have expanded the communications table in the Project Management Plan to include SRDP Participation in:

- Annual AAS & Scientific Topical meetings, to engage the non Radio Astronomy Community
- NRAO and CASA User Committee meetings, to engage the non Radio Astronomy Community

Comment by Robert Treacy [11/May/18]

Provide a written plan to raise awareness within the non-Radio Astronomy community through Astronomy venues such as AAS prior to introduction of SRDP and demos on use when products are available.

1.1.15 [SRDP-31] typo Created: 24/Apr/18 Updated: 02/May/18 Resolved: 02/May/18

Status:	Done
Project:	Science Ready Data Products
Component/s:	SRDP-015-MGMT: SRDP Stakeholder Requirements
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Christine Wilson	**Assignee:**	Christine Wilson
Resolution:	Done	**Votes:**	0
Labels:	SRDP_CoDR		

Page Number:	15
Suggested Solution:	confirm and correct

Description

UC01-0003: "The SRDP proposal process" I think should be "the Observatory Proposal process"

Comments

Comment by Robert Treacy [02/May/18]

The UC01-0003 Requirement statement was changed to read:
The Observatory proposal process shall allow the user to "opt out" of the standard calibration process required for an SRDP compliant proposal, with documentation to justify the decision for non-compliance with SRDP guidelines. Such proposals shall inhibit automatic trigger of the Standard calibration pipeline.
Note: The System Concept did not use this wording, so no change is reflected back.

1.1.16 [SRDP-32] Security Created: 24/Apr/18 Updated: 04/May/18 Resolved: 04/May/18

Status:	Done
Project:	Science Ready Data Products
Component/s:	General Issues (non-document specific)
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Bruce Berriman	**Assignee:**	Bruce Berriman
Resolution:	Done	**Votes:**	0
Labels:	SRDP_CoDR		

Suggested Solution:	Add references

Description

I don't think the docs don't mention how security will be handled - protecting PI data when created, stopping hackers etc etc. Is this handled at the observatory level? It would certainly make sense that the observatory handled this on behalf of all its projects. If so, might I suggest that you include a short paragraph on this somewhere and reference the observatory security docs.

Comments

Comment by Morgan Griffith [26/Apr/18]

Good point! Security policy and procedures are handled at the Observatory level, as outlined here: https://info.nrao.edu/computing/compAndSecPolicy/computing-security/computersecuritypolicy.pdf. Also, data proprietary periods are also defined at the Observatory level: https://science.nrao.edu/observing/proposal-types/datapolicies and enforced in software, such as the NRAO Archive. We will add this to our SRDP documentation.

1.1.17 [SRDP-33] priority of individual Use Cases Created: 24/Apr/18 Updated: 11/May/18

Status:	Post Review Action
Project:	Science Ready Data Products
Component/s:	SRDP-014-MGMT: System Concept, SRDP-015-MGMT: SRDP Stakeholder Requirements
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Christine Wilson	**Assignee:**	Jeff Kern
Resolution:	Unresolved	**Votes:**	0
Labels:	SRDP_CoDR, SRDP_CoDR_Implementation		

Issue Links:	**Relates**			
	relates to	SRDP-59	Early prioritization of the 'use cases'	In Review
Page Number:	17			
Suggested Solution:	clarify priority for use case development in the documents			

Description

It is critical to get the priorities for the Use Cases correct. Standard Calibration (for the VLA) is clearly a high priority, as nothing else can be done without it. However, once you have a standard calibration, it is much more useful if the Restoration Use Case is also available. That way the user can get calibrated uv data and make an image.
My experience with ALMA data is that getting a first-look image is relatively quick, but the calibration of the data can take more time, resources, and versions of casa. For ALMA users, the first and most useful thing the SRDP project could offer is Restoration. Some archive Use Case functions are also needed to be able to deliver the restored uv data.
I think that for both the VLA and ALMA, focusing on what is needed to get calibrated uv data into the hands of the users ought to be the single highest priority, with standard imaging for the VLA the next thing that is needed.
The fact that the Restoration Use Case is one of the first to be delivered in the Early project is buried at the end of that section of the Roadmap. As long as we stick with this, I will be happy!

Comments

Comment by Bruce Berriman [24/Apr/18]

I am not a practicing radio astronomer, so I am finding it a little difficulty to assess these use cases and their prioritization. Do you have a sense of when each of the use cases as they stand now (with the

understanding that they are all subject to review in each successive wave) would be implemented. Without this, I find it hard to assess the accuracy of the cost model.

Comment by Jeff Kern [25/Apr/18]

The roadmap was included in the System Concept so that only document would need to be reviewed as part of the stakeholder review process. It is intended to be broken out (post Stakeholder Requirement Review and Co-DR) to a document that is more detailed and updated with each cycle.
I agree that the restore capability is something of benefit to both the VLA (once we have calibrations) and ALMA (immediately). It is also a simpler use case than some of the others and that is why it is prioritized. So VLA calibration and restore (for both telescopes) I think are uncontroversial.
What is more controversial (see SRDP-59) is if we start with standard imaging for the VLA or the optimized imaging. I'll put comments on the pros and cons of the approaches there.
Bruce, the roadmap is in the System Concept document, in formulating the cost plan I assumed
Year 1:

- VLA Calibration Pipeline is available and consumes most of the DA effort.
- ALMA restore case is enabled and is used to download data.
- Some test cases of optimized imaging for ALMA beginning to build expertise

Year 2:

- More optimized imaging for ALMA
- Restore in use for both telescopes
- Recalibration starting to turn on

Year 3:

- This was when I thought we would first turn on optimized imaging for VLA, but if that needs to be de-prioritized in favor of standard imaging (see above) I would need to redo the model.

Comment by Robert Treacy [11/May/18]

Carry discussion from this ticket back to the StRR and take direction from outcome of their discussion

1.1.18 [SRDP-34] a tangle of documentation Created: 24/Apr/18 Updated: 10/May/18 Resolved: 10/May/18

Status:	Done
Project:	Science Ready Data Products
Component/s:	General Issues (non-document specific)
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Christine Wilson	**Assignee:**	Jeff Kern
Resolution:	Done	**Votes:**	0
Labels:	SRDP_CoDR, SRDP_CoDR_Context		

Suggested Solution:	I don't know, maybe an executive summary document could be written after the review?

Description

I have now read most of the documents but I am finding it hard to get a clear picture of "things in general". (You may notice that in some of my RIDs I describe something as missing or unclear and then by the end of it I have found the missing information in another document, or I don't find it and you point it out to me later.)
For example, I was very concerned about how big the budget and staff resources needed for this project might be, and how sure we could be that it would be sufficient. Then I found in the DMSD work plan that the SRDP project is the highest priority in the whole observatory after operations! That would have been good to have known right at the beginning.

Comments

Comment by Jeff Kern [02/May/18]

I am sorry that you found the documentation tangled, and frustrating.
I have rarely found that the executive summary or context documents useful for understanding a project when I am on the other side of the table (which is why I chose not to include one). If you think it would be helpful I will write one to assist the next group trying to understand the overall structure.
I wonder if powerpoint (with notes) might be a better medium for this than another document?

Comment by Christine Wilson [03/May/18]

I have a better overview of the project at this point after entering my RIDs and reading the responses. But some kind of summary could still be useful - I like the powerpoint idea, especially if it could be done before or at the meeting.

Comment by Robert Treacy [10/May/18]

closed by committee consensus in CoDR

Comment by Robert Treacy [10/May/18]

~~SRDP-34~~ & SRDP-121 reviewed together, follow up is under SRDP-121

1.1.19 [SRDP-35] Have there been prototyping efforts? Created: 24/Apr/18 Updated: 15/May/18

Status:	Post Review Action
Project:	Science Ready Data Products
Component/s:	General Issues (non-document specific)
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Bruce Berriman	**Assignee:**	Morgan Griffith
Resolution:	Unresolved	**Votes:**	0
Labels:	SRDP_CoDR, SRDP_CoDR_Architecture		

Suggested Solution:	Document prototyping efforts. Plan yo handler failures in processing.

Description

The team has produced an impressive plan. To what extent has it been informed by prototyping efforts, by pilot projects, and by observatory experience. Is this document. I think the underlying question is how can you be confident that this plan will work? And if parts of it do not, how do you go about updating the plan? Would you, say, have period reviews off processes and use them to drive better processes?

Comments

Comment by Jeff Kern [25/Apr/18]

The plan builds on many existing initiatives at NRAO. Standard Calibration and Imaging are based on the experiences of ALMA to date, and reflect the experiences both of the heuristics and development side as well as the operations side. Calibration Pipelines already exist for both VLA and ALMA, and ALMA's imaging pipeline is in routine use and fairly advanced, although not yet at 100% science ready images. The workflow management system takes the strong parts of the ALMA system and combines them with the experience of the VLA Sky Survey - Survey Status Data Base. And NRAO has an existing helpdesk system that we are used to using to communicate with our users. So there are existing pilots and prototypes that need to combined into a system, and of course in doing that we will find places where we need to refactor or redo an interface. Some of this is in the Architecture document, but we have not explicitly catalogs the prototypes or pilots.
All that said, I'm certain that there are parts of the plan that we've gotten wrong. This is why we have adopted the Rolling Wave approach to allow corrections to the plan on a yearly basis as our understanding evolves. The feedback loop that I think is most difficult to close is between operations and implementation. This is why we have put a review in each wave 3 months after deployment (this is documented in the project management plan as step 6 of the implementation phase) while we are still in the elucidation of the successive cycle to allow operations requirements to feed back into the planning.

Comment by Robert Treacy [15/May/18]

Include a description of the end to end processes that have been demonstrated in the operational environment (AWS & XSEDE).
Document the budget contingency needed to respond to offsite processing

1.1.20 [SRDP-36] UC02-0002 Standard Imaging Created: 24/Apr/18 Updated: 04/May/18

Status:	Post Review Action
Project:	Science Ready Data Products
Component/s:	SRDP-015-MGMT: SRDP Stakeholder Requirements
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Christine Wilson	**Assignee:**	Dana Balser
Resolution:	Unresolved	**Votes:**	0
Labels:	SRDP_CoDR		

Page Number:	19
Suggested Solution:	offer some default choices (full continuum I, spectral cube with given range and resolution) and allow observers to modify if they wish

Description

I don't think it is a good idea to make every observer to define the products they want

Comments

Comment by Jeff Kern [27/Apr/18]

I think this is similar to SRDP-37, this is really a requirement on the implementation in the PST, not on SRDP. I've added Data to the watchers and we should carry this requirement to that planning.

Comment by Christine Wilson [02/May/18]

transfer to PST requirements

1.1.21 [SRDP-37] UC02-0003 Standard Imaging Created: 24/Apr/18 Updated: 04/May/18

Status:	Post Review Action
Project:	Science Ready Data Products
Component/s:	SRDP-015-MGMT: SRDP Stakeholder Requirements
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Christine Wilson	**Assignee:**	Dana Balser
Resolution:	Unresolved	**Votes:**	0
Labels:	SRDP_CoDR		

Page Number:	15
Suggested Solution:	combination should be the default; observers interested in variability should be allowed to opt out

Description

observers should not have to request that multiple executions of the same scheduling block be combined

Comments

Comment by Christine Wilson [24/Apr/18]

sorry, page 19

Comment by Jeff Kern [26/Apr/18]

This is a bit of a technical bleed through. In the processing chain we need to set up an extra step to do the combination (after all of the executions have been done individually). So the extra step needs to be specified from the point of SRDP. But from the perspective of the PI all of that can be hidden by the default in the PST/OPT (or in the case of ALMA the OT, although that is already implemented as you say) so that the default behavior is to do the combination. I've added Dana as a watcher to this ticket as he is working on the specification for the updated PST.
I would propose to carry your suggested requirement to the PST requirements, and leave the SRDP requirement as is.
For Dana's information the requirement in SRDP is:
Standard Imaging
Combined imaging of multiple executions of the same scheduling block in the same configuration shall be supported, provided that the desire for this product is identified as part of the observing proposal.

Comment by Christine Wilson [02/May/18]

transfer this requirement to the PST requirements

Comment by Jeff Kern [04/May/18]

Assigning to Dana for follow up in the PST requirements process.

1.1.22 [SRDP-38] UC02-0009 Standard Imaging

Created: 24/Apr/18 Updated: 02/May/18 Resolved: 02/May/18

Status:	Done
Project:	Science Ready Data Products
Component/s:	SRDP-015-MGMT: SRDP Stakeholder Requirements
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Christine Wilson	**Assignee:**	Christine Wilson
Resolution:	Done	**Votes:**	0
Labels:	SRDP_CoDR		

Page Number:	20
Suggested Solution:	could allow the proposer to specify frequency ranges that should not be used for the continuum image

Description

line contamination of the continuum image could be a problem for some sources

Comments

Comment by Jeff Kern [27/Apr/18]

We actually discussed this, but left it out of the high level requirements as an implementation detail. Ideally the findcont step of the ALMA pipeline will be able to be reused. I think there is already a manual intervention that allows this to be specified (either in the positive: use this part of the spectrum, or in the negative: don't use this part). If we want to use this in standard imaging we would have to capture this at proposal time. Is that possible to do in a reliable way, before we've seen the data? If not, then this something we would need to deal with in QA (which is what ALMA does now), or through an optimized reprocessing if required,

Comment by Christine Wilson [02/May/18]

I accept that optimized imaging could handle this aspect of the use case

1.1.23 [SRDP-39] UC02-00011 Standard Imaging Created: 24/Apr/18 Updated: 08/May/18

Status:	Post Review Action
Project:	Science Ready Data Products
Component/s:	SRDP-015-MGMT: SRDP Stakeholder Requirements
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Christine Wilson	**Assignee:**	Robert Treacy
Resolution:	Unresolved	**Votes:**	0
Labels:	SRDP_CoDR		

Page Number:	21
Suggested Solution:	Update the stakeholder requirements with the updated language in the System Concept document.

Description

cubes must always be produced for a spectral imaging project, even if only for the highest priority line(s)

Comments

Comment by Jeff Kern [02/May/18]

I have added the following language to the System Concept document:
In cases for which the requested spectral cube is determined to be "too large" the user shall be informed at proposal time and allowed to refine the requested product (e.g. spectral range or resolution) to conform to size and computational limits.
If you agree with this solution please mark this as an Action Item for the associated requirement in the Stakeholder Requirement Document to be updated.

Comment by Christine Wilson [03/May/18]

I agree with the solution but I don't know how to mark it as an Action Item in the way you suggest - can you do it for me?

Comment by Christine Wilson [03/May/18]

asking Jeff to make the action item for me

Comment by Robert Treacy [08/May/18]

The Statement has been added to the Stakeholder Requirements Document

1.1.24 [SRDP-40] UC04-0005 Archive Use Created: 24/Apr/18 Updated: 02/May/18 Resolved: 02/May/18

Status:	Done
Project:	Science Ready Data Products
Component/s:	SRDP-015-MGMT: SRDP Stakeholder Requirements
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Christine Wilson	**Assignee:**	Robert Treacy
Resolution:	Done	**Votes:**	0
Labels:	SRDP_CoDR		

Page Number:	27
Suggested Solution:	offer a spectrum

Description

A key component is missing here: the archive should also offer some kind of quick-look spectrum for spectral projects. This could be at the peak continuum pixel, or averaged over the central x% of the field of view, or both

Comments

Comment by Christine Wilson [24/Apr/18]

The Japanese Virtual Observatory provides a form of this functionality already, based on the delivered ALMA standard imaging products
http://jvo.nao.ac.jp/portal/alma.do

Comment by Jeff Kern [02/May/18]

A very good suggestion I have added this to the list of Data Product Visualization items in the Archive Use Case of the System Concept. Marking as an action item for the referenced document to be updated.

Comment by Robert Treacy [02/May/18]

The Stakeholder Requirements document has also been updated

1.1.25 [SRDP-41] Contingency planning Created: 24/Apr/18 Updated: 11/May/18

Status:	Post Review Action
Project:	Science Ready Data Products
Component/s:	General Issues (non-document specific)
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Bruce Berriman	**Assignee:**	Robert Treacy
Resolution:	Unresolved	**Votes:**	0
Labels:	SRDP_CoDR, SRDP_CoDR_Context		

Suggested Solution:	Write contingency plans

Description

I don't see contingency plans addressed in a broad sense - e.g. contingency in S/W schedules, what to do when hardware goes down when you don't what it to, what happened when staff are staff not available etc.

Comments

Comment by Robert Treacy [04/May/18]

We have two primary areas where contingency needs to be broadly considered:
Implementation – this is predominantly managed inside DMS - see DMSD Software Development Processes Section 2, number 4. The workload management policy for all groups within DMS is to schedule workloads at 80% capacity, reserving one day per week for unplanned tasks.
Operations – defining contingency in operations has some dependency on non-functional requirements which have not yet been defined (i.e. availability). Production of data products is not mission critical, in most cases work can be deferred until resources and staff are available. An exception to this is processing of Time Critical observations. In this case, staff and resources required are typically a small fraction of the whole so the contingency is to grant priority for the Time Critical Observations on a case by case basis as needed.

Comment by Robert Treacy [11/May/18]

Since project contingency is held to meet milestones, add to the project documentation how slips in milestones are managed

1.1.26 [SRDP-42] UC04-0014 Archive Use Created: 24/Apr/18 Updated: 02/May/18

Status:	Post Review Action
Project:	Science Ready Data Products
Component/s:	SRDP-015-MGMT: SRDP Stakeholder Requirements
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Christine Wilson	**Assignee:**	Jeff Kern
Resolution:	Unresolved	**Votes:**	0
Labels:	SRDP_CoDR		

Page Number:	29
Suggested Solution:	point out that QA not needed for regeneration (if successful); check for other instances where this may not be needed

Description

It is not clear that quality assurance by a staff member will always be needed. See regeneration use case, for example.

Comments

Comment by Jeff Kern [26/Apr/18]

I think we need to differentiate between QA as a generic quality assurance (such as just checking that the regeneration was successful) and an ALMA style QA where the data quality is assessed. I agree that for regeneration it is a simple check of if the process was successful or not, but I think we still want to do that check before sending the result to the user. Part of the reason for always doing a QA step (appropriate to the processing) is to be able to identify trends in the defects (Regeneration of VLA Q-Band fails 40% of the time) so that these deficiencies can be addressed and improved.

Comment by Christine Wilson [02/May/18]

in the document, differentiate between the two different types of QA as described in Jeff's response

1.1.27 [SRDP-44] UC04-00149Archive Use Created: 24/Apr/18 Updated: 02/May/18

Status:	Post Review Action
Project:	Science Ready Data Products
Component/s:	SRDP-015-MGMT: SRDP Stakeholder Requirements
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Christine Wilson	**Assignee:**	Robert Treacy
Resolution:	Unresolved	**Votes:**	0
Labels:	SRDP_CoDR		

Page Number:	30
Suggested Solution:	Add ALMA Style download script as an L2 requirement.

Description

The download script option offered by the ALMA archive is very efficient and something like this should be supported. I was not sure if this is what was meant by "download manager" in point 1.
(also, is item 1 a single method or two methods? it is confusing)

Comments

Comment by Jeff Kern [25/Apr/18]

The first item is a single item a URL that allows direct download, but requires a password to access. This is essentially what the ALMA script is using, but it wraps it up in a nice way that makes it easy for the end user. This is really an implementation detail (although important), my suggested resolution would be to add this as a level 2 requirement as a refinement of the URL concept.

Comment by Christine Wilson [25/Apr/18]

I am happy as long as there is an easy and efficient way to download multiple data sets without having to point and click on a bunch of links in a web browser (or use wget, which doesn't work easily with all systems and/or firewalls)

Comment by Robert Treacy [02/May/18]

I have created a draft document to capture suggestions for implementation at the L2 level. This has been entered and linked to SRDP-44 as the source.

1.1.28 [SRDP-45] role of Architect Created: 24/Apr/18 Updated: 02/May/18

Status:	Post Review Action
Project:	Science Ready Data Products
Component/s:	DMS Work Management Plan for SRDP
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Christine Wilson	**Assignee:**	Morgan Griffith
Resolution:	Unresolved	**Votes:**	0
Labels:	SRDP_CoDR		

Page Number:	4
Suggested Solution:	clarify role of Architect

Description

The Architect seems to be a critical person for the SRDP project, but he/she is not one of the 4 key people actually inside the SRDP project. I also find it interesting that he/she is not included in the coordination meetings. And is the Architect a group, one person, two people?

Comments

Comment by Bruce Berriman [25/Apr/18]

Noted this too. Also expected architect to be own staff meetings.

Comment by Bruce Berriman [25/Apr/18]

... I meant IN staff meetings

Comment by Morgan Griffith [26/Apr/18]

We agree that the Architect should be part of the weekly meetings.
We currently have one person in the architect role, but are actively hiring additional staff. We anticipate that we will have two architects in DMS, with one taking the primary role with SRDP development and delivery.
The architect and the Head of Software will together provide the technical and management leadership for the DMS portion of SRDP, and will both work closely with the key SRDP resources to make sure the overall project runs in a coordinated fashion.

Comment by Christine Wilson [02/May/18]

Modify documentation to be clear that the Architect (a person or persons) will be part of the weekly meetings

Comment by Robert Treacy [02/May/18]

I have added the DMS Architect to the SRDP Project Management Plan (Communication Table) for clear inclusion in SRDP Project meetings, reassigning to Morgan to revise DMS documents

1.1.29 [SRDP-46] FTE requirements Created: 24/Apr/18 Updated: 10/May/18 Resolved: 10/May/18

Status:	Done
Project:	Science Ready Data Products
Component/s:	DMS Work Management Plan for SRDP
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Christine Wilson	**Assignee:**	Christine Wilson
Resolution:	Done	**Votes:**	0
Labels:	SRDP_CoDR, SRDP_CoDR_Implementation		

Page Number:	10
Suggested Solution:	give more details/reassurances

Description

Based on experience with CASA, the ALMA Pipeline, etc, is 7.5 FTE/year sufficient effort to carry out this project?

Comments

Comment by Bruce Berriman [24/Apr/18]

I am having trouble understanding whether the cost plan is reasonable. May I ask if you can tell us how you arrived at this number? I would, presume, for example that it is based at least in part on experience with ALMA and VLA.

Comment by Morgan Griffith [30/Apr/18]

The cost plan is our best guess based on previous experiences, in particular with ALMA and VLASS. However, it is a guess as the requirements for SRDP are just being developed. As we get more details over the next year we will revisit the cost/effort plans and adjust as needed.

Comment by Robert Treacy [10/May/18]

closed by committee consensus in CoDR

1.1.30 [SRDP-47] Hardware management Created: 24/Apr/18 Updated: 11/May/18 Resolved: 11/May/18

Status:	Done
Project:	Science Ready Data Products
Component/s:	SRDP-014-MGMT: System Concept
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Bruce Berriman	**Assignee:**	Bruce Berriman
Resolution:	Done	**Votes:**	0
Labels:	SRDP_CoDR, SRDP_CoDR_Architecture		

Page Number:	11
Suggested Solution:	Develop plan for operations on AWS/XSEDE

Description

The hardware needs are devolved to the Observatory and not managed by the SRDP. You say there are policies in place to balance competing needs of projects, and then say the demand profile will be changed and you have methods in place to assess this change. I think this is a very good plan. What bothers me is if you find rapid oversubscription taxes your resources. You say that the pipelines do run on AWS and XSEDE, but are not ready to operate there. How do you ensure that you can indeed operate on these distributed platforms when you need them? How much effort is needed to ready the pipelines for operation on AWS and XSEDE? Is this work part of the cost plan, and do you have staff experienced in these platforms?

Comments

Comment by Bruce Berriman [24/Apr/18]

This may be considered part of contingency planning

Comment by Morgan Griffith [30/Apr/18]

In order to make progress on improving the readiness of AWS and XSEDE, two areas need to be addressed:
a) reducing the CASA memory footprint
b) improving pipeline processing capabilities
The first is a current and ongoing task for CASA, and the second will be addressed as part of SRDP, as well as in general for ALMA and VLA processing. We have resources from both the CASA and HPC teams with the proper skills and available for this work
As noted, this should be prioritized as part of contingency planning. The specific work needed to improve the utility of AWS and XSEDE for pipeline runs will be determined during the requirements analysis/design process.

Comment by Robert Treacy [11/May/18]

Hardware resource contingency will be developed as part operational planning associated with start of a wave.

1.1.31 [SRDP-48] Information on processing Created: 24/Apr/18 Updated: 15/May/18

Status:	Post Review Action
Project:	Science Ready Data Products
Component/s:	SRDP-014-MGMT: System Concept
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Bruce Berriman	**Assignee:**	Robert Treacy
Resolution:	Unresolved	**Votes:**	0
Labels:	SRDP_CoDR, SRDP_CoDR_Architecture		

Page Number:	11
Suggested Solution:	Provide above information to team

Description

I understand that existing compute resources are adequate to support SRDP, at least in the short-term. It would be useful for context to have the following information:

- What are the expected products and sizes
- Expected processing times
- What compute/storage resources do you have available

Comments

Comment by James Robnett [02/May/18]

Bruce, I'll attempt to answer your questions. For context I was the NRAO-NM Computing Infrastructure Division Head from '98 to 2013, since 2013 I've been leading a new Scientific Computing Group tasked with coordinating data processing on NRAO clusters and large storage systems.

- What are the expected products and sizes

The EVLA and ALMA raw data ingestion rate into NRAO archives is a bit under 2TByte/day and 1TByte/day respectively or 600TByte and 300TByte per year with a single observation being a few 100'0s of GBytes. The proposed SRDP products will be an additional storage load. Calibration products are small and only 100s of MBytes to 1s of GBytes per observation. Continuum images may be up to 10K x 10K pixels or a few 100MBytes. Full spectral cube images (one plane per channel) could be on the order of 10K x 10K pixels by 10K channels or a few TBytes in size. Full cubes could be larger than the raw data.

To first order we're anticipating image volume equivalent to the raw data volume, with a limit on larger full spectral resolution cubes. We can accommodate that anticipated volume with flat budgets due to industry advances in disk volume. Larger product volume may require budget infusions.
As an example the 34,000 square degree northern hemisphere VLASS survey will generate over the next 6 years 10K x 10K continuum images per square degree, source cutouts from 10K x 10K x 16 spectral window coarse cubes per square degree and cutouts from 10K x 10K x 8K fine cubes of 10% of the sky. The full complement of 34,000 sq dg fine cubes would required 30Petabytes of storage hence the cutouts of 10% of the sky to reduce that volume. This volume of image products should be greater than SRDP since it's a focused all sky survey.

- Expected processing times

We don't have a specific target spelled out. We need to balance minimizing the time to process one image, typically manged through parallelization with minimizing the time to process a full complement of images via concurrency. My recommendation would be to balance throughput via concurrency versus latency via parallelization such that imaging takes less than a week. If we can image a data set serially in 2 or 3 days it's not clear there's a huge win in parallelization. If there are excess compute resources those can be used to further reduce latency via parallelization. Some resources need to be held in reserve for ad hoc processing so we don't want to simply throw all resources at imaging to minimize latency.

- What compute/storage resources do you have available

A table with the New Mexico Array Science Center (NMASC) and North American ALMA Science Center (NAASC) cluster resources is available here: https://info.nrao.edu/computing/guide/cluster-processing/appendix/available-hardware-resources
We typically perform rolling upgrades of 20% of the cluster to retain a 5 year replacement schedule so with no additional resources by the end of SRDP the effective flops of each cluster should be 2-3 times the current level. Both clusters are backed by Petabyte class Lustre filesystems capable of sustaining 10+ GByte/s I/O. The current clusters are lightly used and should be available at the 50 to 70% level for SRDP use without impacting regular use cases. Some of the predicted availability stems from improvements ni cluster scheduling to more efficiently pack jobs on to the compute nodes.
As an example of potential efficiency the 30 most recent NMASC cluster nodes are dedicated to VLASS imaging. We can pack 16 imaging jobs per node so we can have up to 480 concurrent independent jobs (no parallelization) with typical run times of 48 hours. In the past 6 months the project has generated 15,500 one square degree VLASS Quicklook images.
Hopefully the above addresses your questions but I'm happy to answer any follow on questions.

Comment by Robert Treacy [15/May/18]

Include the following in the System Concept (from 1^st^ 2 bullets on slide 6 of the Architecture presentation):

- Expected products and sizes
  - Calibration products are relatively small (0.1-1 GBytes).

Anticipating image volume flow equivalent to raw data (EVLA: 600 TBytes/year, ALMA: 300 TBytes/year), assuming a limit in full spectral resolution cubes.

1.1.32 [SRDP-49] Role of Program Manager Created: 24/Apr/18 Updated: 10/May/18 Resolved: 10/May/18

Status:	Done
Project:	Science Ready Data Products
Component/s:	SRDP-003-MGMT: Project Management Plan, SRDP-008-MGMT: Responsibility Matrix
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Bruce Berriman	**Assignee:**	Bruce Berriman
Resolution:	Done	**Votes:**	0
Labels:	SRDP_CoDR, SRDP_CoDR_Context		

Page Number:	11
Suggested Solution:	Clarify role

Description

Figure 2 identifies a Program Manager, but their role is not called out and I don't see this role in the RACI matrix.

Comments

Comment by Jeff Kern [25/Apr/18]

The Program Manager is an institutional role, rather than a project role. This role defines observatory wide standards and processes which the SRDP project must conform to. It is included in Figure 2 to show the line management for the project manager.

Comment by Robert Treacy [10/May/18]

closed by committee consensus in CoDR

Comment by Robert Treacy [10/May/18]

CoDR Panel reviewed the SRDP Org chart for all positions, with emphasis on the Program Manger in a position of supervision over the SRDP Project Manger and also managing SRDP within the NRAO program portfolio.

1.1.33 [SRDP-50] Errors in color coding? Created: 24/Apr/18 Updated: 30/Apr/18 Resolved: 25/Apr/18

Status:	Done
Project:	Science Ready Data Products
Component/s:	SRDP-008-MGMT: Responsibility Matrix
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Bruce Berriman	**Assignee:**	Jeff Kern
Resolution:	Fixed	**Votes:**	0
Labels:	SRDP_CoDR		

Issue Links:	**Duplicate**			
	is duplicated by	~~SRDP-138~~	Correction of color key	Done
Suggested Solution:	Please correct			

Description

The matrix uses Green too demote consult, Blue to denote Inform. The key has these reversed

Comments

Comment by Jeff Kern [25/Apr/18]

We will fix the legend.

Comment by Jeff Kern [25/Apr/18]

I have fixed the master version of the document.

1.1.34 [SRDP-51] Responsible parties Created: 24/Apr/18 Updated: 10/May/18 Resolved: 10/May/18

Status:	Done
Project:	Science Ready Data Products
Component/s:	SRDP-008-MGMT: Responsibility Matrix
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Bruce Berriman	**Assignee:**	Bruce Berriman
Resolution:	Done	**Votes:**	0
Labels:	SRDP_CoDR, SRDP_CoDR_Context		

Suggested Solution:	Please explain rationale for the choices in the matrix

Description

I was expected to see a responsible party for each line of the matrix, yet many tasks don't identify such.

Comments

Comment by Jeff Kern [25/Apr/18]

I used Wikipedia for my definitions:
Responsible (also *Recommender*)Those who do the work to complete the task.[[7]|https://en.wikipedia.org/wiki/Responsibility_assignment_matrix#cite_note-pmiforum-7] There is at least one role with a participation type of *responsible*, although others can be delegated to assist in the work required (see also *RASCI* below for separately identifying those who participate in a supporting role).
Accountable (also *Approver* or *final approving authority*)The one ultimately answerable for the correct and thorough completion of the deliverable or task, and the one who delegates the work to those *responsible*.[[7]|https://en.wikipedia.org/wiki/Responsibility_assignment_matrix#cite_note-pmiforum-7] In other words, an *accountable* must sign off (approve) work that *responsible* provides. There **must** be only one *accountable* specified for each task or deliverable.[4]
So in cases where the work is delegated there is one A the "decision authority" and there may be one or more Responsible. In cases where there is only an A and no R the Authority and the person who does the work are the same person.
There are three rows in the matrix where there are multiple authorities, this reflects the parallel structure of the VLA and ALMA organizations. So the NA ALMA AD and NM Ops AD both have authority for their staff, but each individual only reports to a single AD.

Comment by Robert Treacy [10/May/18]

Update the RACI with definitions provided

Comment by Robert Treacy [10/May/18]

RACI has been updated

F.1.35 [SRDP-52] Pipeline for all VLA receivers? Created: 25/Apr/18 Updated: 10/May/18 Resolved: 10/May/18

Status:	Done
Project:	Science Ready Data Products
Component/s:	General Issues (non-document specific)
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Tracy Clarke	**Assignee:**	Tracy Clarke
Resolution:	Done	**Votes:**	0
Labels:	SRDP_CoDR, SRDP_CoDR_Requirements		

Suggested Solution:	Clarify.

Description

I have not yet come across a clear identification of whether ALL JVLA receivers will be included in the SRDP calibration and imaging. Some bands have different calibration needs (e.g. ionosphere vs troposphere effects) and imaging needs (e.g. wide-field).

Comments

Comment by Jeff Kern [25/Apr/18]

The objective is to support all receiver bands. We anticipate starting with the "easy" bands and then moving into the more difficult portions of the spectrum. As the project progresses there will be tensions between priorities (for example: add calibration pipelines for low frequencies vs. extra capabilities in imaging). We plan to use the NRAO users committee to help with this prioritization. The guiding principle will be to maximize the scientific output of the facilities.

Comment by Robert Treacy [10/May/18]

Response provided to panel in CoDR accepted by consensus of review panel members:

- The objective is to support all receiver bands.
- Start with the "easy" bands then move into the more difficult portions of the spectrum.
- Tension between bands and capabilities.

We plan to use the NRAO users committee to help with this prioritization. The guiding principle will be to maximize the scientific output of the facilities.

1.1.36 [SRDP-53] Questions about Software Development Processes Created: 25/Apr/18 Updated: 10/May/18 Resolved: 10/May/18

Status:	Done
Project:	Science Ready Data Products
Component/s:	DMSD Software Development Process
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Bruce Berriman	**Assignee:**	Bruce Berriman
Resolution:	Done	**Votes:**	0
Labels:	SRDP_CoDR, SRDP_CoDR_Implementation		

Attachments:	SRDP Project Organization.pdf
Suggested Solution:	Provide details on the topics above

Description

Section 2 - I don't understand about addressing the CASA PMD Requirements (please note we don't have this doc). Why is the SRDP implementing this? Should there not be am equivalent SRDP document?
Section 4 - Agile projects. I must confess I am struggling to understand the relationship between the rolling wave development and the DMSD development model. I think of rolling wave as a development model, just as agile is. The impression I get is that there will be a rolling wave of SRDP deliveries to the community. Will the deliveries in each wave be performed be performed by different groups under the DMSD umbrella. Each of these groups seems to have the latitude to exploit their own development processes. How does the SRDP manage deliverables developed by several groups? Section 6 says that they develop their own release strategies, CM and test plans, for example. Would it be more cost effective to have a common set of processes and strategies for the SRDP?
It would be very useful to have a diagram that shows the organization and relationships between the SDRP and the development team(s)

Comments

Comment by Morgan Griffith [01/May/18]

Section 2 - I think a bit of context may help here. This document is not specific to SRDP but is is an overall DMS document regarding processes to be implemented across the DMSD groups. It focuses on how work is done and tracked within groups, and suggests a common approach across the groups.

Two years ago, PMD and DMS jointly sponsored study of the CASA work processes in an effort to develop a set of "best practices" for software development, customized to the NRAO software development environment. The CASA group was chosen as representative, with the processes to be applied to other groups as deemed useful. The JIRA-supported processes for tracking, verification, and

validation have been implemented on all of DMSD, as has the priority setting process outlined in Appendix I of the "DMSD Work Management Plan for SRDP." The additional planning, design, and integration processes outlined in that document complement the group-level ones described in "DMSD Software Development Processes" by providing a framework for delivery coordinated across teams, as needed for SRDP.

In short, "DMSD Software Development Process" describes in general how a group delivers software, while "DMSD Work Management Plan for SRDP" describes how we will deliver integrated software across the groups.

Section 4 - The deliveries in each rolling wave are likely to consist of software from different groups within DMS, interacting with each other through interfaces defined in the design process. The design/prioritization process will establish a MVP and target delivery schedule for the components of each wave and will outline the integration process. The integration team will assemble the product set for each wave as the components are completed. As discussed in "DMSD Work Management Plan for SRDP," there will be tests for verification and validation of SRDP deliverables, created by the DMS Architect and SRDP Project Scientist to ensure the deliverables work as expected, individually and as an integrated product.

As we have considered standardizing processes and tools across the teams, we do see benefits in having fewer ways of doing things. In the evaluation this is traded off with the need to support the existing environment, the variety of stakeholder needs, and the disruption which change can cause. We have standardized on JIRA for work tracking, and are moving into git and the Atlassian tool suite for development support. The CASA group is furthest along, with SSA close behind.

From a development process perspective, we try to fit the approach most closely to the problem and availability of resources. If a problem can benefit from rapid iteration and close stakeholder involvement a more agile approach can be used. If the problem is more clearly defined, a more linear approach may be appropriate. The resulting items are integrated first within the team and then into SRDP.

Organization - Attached is a diagram which shows the primary organizational relationships between SRDP and the development teams. Management and coordination is done at the SRDP Project Director/Head of Software level, and requirements are defined between the SRDP Project Scientist (and later SRDP Operations Manager) and the DMS Architect. During implementation there will be many other interactions on all levels across the organizations, but these are the primary organizational relationships.

Comment by Robert Treacy [10/May/18]

closed by committee consensus in CoDR

1.1.37 [SRDP-54] End-to-end project flow Created: 25/Apr/18 Updated: 11/May/18

Status:	Post Review Action
Project:	Science Ready Data Products
Component/s:	General Issues (non-document specific)
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Bruce Berriman	**Assignee:**	Rafael Hiriart
Resolution:	Unresolved	**Votes:**	0
Labels:	SRDP_CoDR, SRDP_CoDR_Implementation		

Suggested Solution:	Create the above material

Description

I have suggestion for aiding clarity. There are many parts to delivering the SRDP products. I think a worked end-to-end example of, say, one product, listing the important steps involved in going from requirements gathering to delivering an SRDP would helps understand the overall structure of the project. Chart form would be helpful too. They documents describe the individual parts in detail, but I am finding it hard to understand the big picture.

Comments

Comment by Rafael Hiriart [02/May/18]

We plan to write detailed use case specifications for each one of the steps involved in specifying, generating and delivering the products. These will be accompanied by interaction diagrams showing how the system elements defined in the architecture interact to implement these use cases.
There are details that need to be specified in our next iteration of requirement specification (level 1) but I will incorporate an end-to-end example in the architecture document, at the level that can be specified at this time.

Comment by Robert Treacy [11/May/18]

Include the End to End project flow diagram that was presented on slide 3 and the I/F diagram from slide 2 in the Architecture Document.

1.1.38 [SRDP-55] Question on stakeholder requirements table

Created: 25/Apr/18 Updated: 11/May/18

Status:	Post Review Action
Project:	Science Ready Data Products
Component/s:	SRDP-015-MGMT: SRDP Stakeholder Requirements
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Bruce Berriman	**Assignee:**	Robert Treacy
Resolution:	Unresolved	**Votes:**	0
Labels:	SRDP_CoDR, SRDP_CoDR_Requirements		

Issue Links:	**Relates**			
	relates to	~~SRDP-79~~	validation against L1 requirements	Done
Page Number:	11			
Suggested Solution:	Clarify page 4, update table when ready to do so.			

Description

The cells for measures of effectiveness and how to obtain effectiveness data, starting on page 11, are not all filled in - when do you anticipate completing this?
I think I may be misunderstanding stakeholder requirements. I would expect that stakeholders would be solicited for, and would provide, requirements, which would then flow into use cases and then formal requirements. Page 4 indicates that the flow off information is the other way round - it appears the use cases inform the stakeholder requirements. Can you clarify, please?

Comments

Comment by Robert Treacy [04/May/18]

Our requirements template provides a format to assign attributes for metrics, tracking, and translation to the RVTM. We have adopted the notation L0 for Stakeholder, L1 for System, and L2 for System Element level requirements. The use of this template predates a recent move to adopt SysML for SRDP, which allows for direct entry of the L0 requirements to build relationships with architectural elements and track requirements throughout the model. The SySML model will directly incorporate the requirements to develop the system architecture. I had started to populate the metrics before the architecture had started. Being an iterative process, when I shared this with the System Architect, he suggested I wait until we can both review the architecture together to complete the metrics. We plan to do this immediately following CoDR, in the same window when L0 will be decomposed to L1. We simply did not have time finish this prior to the review.

We are generally following the requirements flow down defined in the INCOSE Handbook (International Council on Systems Engineering). This begins with a high level narrative, which they call Concepts. We organized the System Concept into use cases at the conceptual level. In retrospect, probably not the best choice of words. The Architect is on the Requirements Committee and their next task is to decompose the Stakeholder (L0) to System Requirements (L1). This decomposition will include decomposition from L0 to Use Case Specifications in the breakdown to System Requirements.

Comment by Robert Treacy [11/May/18]

Add diagram from CoDR Requirements presentation on slide 6 to the SEMP

1.1.39 [SRDP-56] Project integration Created: 25/Apr/18 Updated: 04/May/18 Resolved: 04/May/18

Status:	Done
Project:	Science Ready Data Products
Component/s:	DMS Work Management Plan for SRDP
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Bruce Berriman	**Assignee:**	Bruce Berriman
Resolution:	Done	**Votes:**	0
Labels:	SRDP_CoDR		

Page Number:	11
Suggested Solution:	Clarify document

Description

In case of disagreements, who has the final authority in deciding on priorities?

Comments

Comment by Morgan Griffith [30/Apr/18]

Issues are reviewed by the Head of Software and SRDP Director. If an issue cannot be resolved at that level, it would be escalated to the AD's for SSR and DMS, and if there is still no resolution, the Observatory Director has the final authority.

1.1.40 [SRDP-57] cost model for work management plan

Created: 25/Apr/18 Updated: 10/May/18 Resolved: 10/May/18

Status:	Done
Project:	Science Ready Data Products
Component/s:	DMS Work Management Plan for SRDP
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Bruce Berriman	**Assignee:**	Bruce Berriman
Resolution:	Done	**Votes:**	0
Labels:	SRDP_CoDR, SRDP_CoDR_CostModel		

Page Number:	10
Suggested Solution:	Review LoEs

Description

I would intuitively expect that, with a new project, the LoE for the DMS would be front loaded (getting started is always the hard part!) in the early years. Are you convinced the even distribution of LoE's is the best staffing model?

Comments

Comment by Morgan Griffith [30/Apr/18]

As mentioned in ~~SRDP-46~~, the estimates for DMS effort are our best guesses at this time and will be refined as we decompose the requirements further and get a better idea of the work involved. It is reasonable to expect more work at the beginning of the project, and the key teams involved, CASA and SSA, are estimated to be dedicating 60% of their available development effort to SRDP in its early years. The SSA effort (archive, workflow manger, reprocessing integration) will probably ramp down over time while the CASA focus on pipeline/heuristic implementation will remain over a longer timeframe. As we get more experience with the project and requirements our estimates will become more accurate and we will develop a better understanding of the effort required for future development.

Comment by Robert Treacy [10/May/18]

closed by committee consensus in CoDR

1.1.41 [SRDP-58] User documentation Created: 25/Apr/18 Updated: 11/May/18

Status:	Post Review Action
Project:	Science Ready Data Products
Component/s:	General Issues (non-document specific)
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Bruce Berriman	**Assignee:**	Robert Treacy
Resolution:	Unresolved	**Votes:**	0
Labels:	SRDP_CoDR, SRDP_CoDR_Context		

Suggested Solution:	Document answer

Description

Who prepares end user documentation for SRDP products? Not sure I see that explicitly addressed in the docs.

Comments

Comment by Jeff Kern [25/Apr/18]

You are correct Bruce it is not in a document, it should eventually be in the Operations Plan. However it is not that we didn't think of it, in the RACI matrix line 54 is the User Documentation and is allocated to the ALMA and NMOps ADs. At NRAO both telescopes have dedicated User Support teams responsible for creation and maintenance of user documentation.
So we should include it in the operations plan, but just as a note to say the SRDP team will support the User Support teams in creating the documentation.

Comment by Robert Treacy [11/May/18]

Add comments to PM Plan on the nature of and responsibility for creating user documentation. (note: not sure how extensive this needs to be. Brian and Morgan had commented that documentation they already maintain, as a routine within DMS, will be updated as needed to reflect changes driven by SRDP, think this will also be part of the document produced in 121)

1.1.42 [SRDP-67] excluded products not clear Created: 25/Apr/18 Updated: 08/May/18

Status:	Post Review Action
Project:	Science Ready Data Products
Component/s:	SRDP-014-MGMT: System Concept
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Christine Wilson	**Assignee:**	Robert Treacy
Resolution:	Unresolved	**Votes:**	0
Labels:	SRDP_CoDR		

Issue Links:	**Duplicate**			
	is duplicated by	SRDP-106	Excluded Scope - clarify statement un...	Done
Page Number:	6			
Suggested Solution:	clarify the language around excluded scope			

Description

The scope is not clear. It says "creation of persistent derived products" is not included in the scope. But it is not clear what "derived products" are. I could view calibrated uv data and images as "derived products", since they are derived from the raw uv data.

Comments

Comment by Christine Wilson [25/Apr/18]

Note this language is also in the Scope Statement document

Comment by Jeff Kern [02/May/18]

The definition I came up with is:
Throughout this document we will use the term derived products to refer to products generated by the processing of images, examples include but are not limited to: line lists, source lists, moment maps, and position-velocity curves.
It is not a terribly specific definition, but hopefully conveys the sense of what we are excluding.

Comment by Christine Wilson [03/May/18]

add proposed definition to document

Comment by Jeff Kern [04/May/18]

Assigning to Bob to update Scope and Requirements document.

Comment by Robert Treacy [08/May/18]

I updated the SRDP Scope Statement, but did not find this in the Stakeholder Requirements document.

1.1.43 [SRDP-71] recalibration not stored in archive Created: 25/Apr/18 Updated: 04/May/18

Status:	Post Review Action
Project:	Science Ready Data Products
Component/s:	SRDP-014-MGMT: System Concept
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Christine Wilson	**Assignee:**	Jeff Kern
Resolution:	Unresolved	**Votes:**	0
Labels:	SRDP_CoDR		

Issue Links:	**Duplicate**			
	is duplicated by	~~SRDP-110~~	Recalibration Use case - storage of c...	Done
Page Number:	27			
Suggested Solution:	allow for the capability to store new calibrations that fix problems with the standard calibration in the archive			

Description

I don't understand why new calibrations are not stored in the archive. Certainly if the new calibration was to fix a problem identified in the standard calibration, it would be service to the community to save it.

Comments

Comment by Jeff Kern [25/Apr/18]

Recalibrations that are "standard" that is none of the optional parameters on page 26 are specified are intended to be stored. If the flagging is "normal" such as flagging bad antennas or RFI such that the uv-coverage is not substantially changed then it can be considered "standard" as well. Coming up with a more rigorous definition will be part of the SRDP project. The intention is to prevent having calibrations which are highly optimized for a specific science case exposed to the user without some way of characterizing what is special about the calibration.
I think the tension is between being as permissive and inclusive of products as possible and ensuring that the provenance is well enough characterized to be understood by a non-expert.

Comment by Christine Wilson [25/Apr/18]

But one of those "optional" parameters is "additional flagging specification". And I think this can include situations where the additional flagging is critical to a good calibration of the data. So that's why this statement is still unclear

Comment by Jeff Kern [27/Apr/18]

Ok, I think we agree. I think the action here is to modify the list of optional parameters on page 27. I need to somehow find a way to distinguish between "standard" flagging which should be one of the allowed parameters for a recalibration that gets stored and "non-standard" that somehow substantially changes the character of the data set. The later should be one of the optional parameters, that prevents the calibration from being stored in the archive.

Comment by Christine Wilson [02/May/18]

in the text, need to find a way to distinguish between "standard" flagging which should be one of the allowed parameters for a recalibration that gets stored and "non-standard" that somehow substantially changes the character of the data set.

1.1.44 [SRDP-74] Early-Project part of Roadmap Created: 25/Apr/18 Updated: 11/May/18 Resolved: 10/May/18

Status:	Done
Project:	Science Ready Data Products
Component/s:	SRDP-014-MGMT: System Concept
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Christine Wilson	**Assignee:**	Robert Treacy
Resolution:	Done	**Votes:**	0
Labels:	SRDP_CoDR, SRDP_CoDR_Implementation		

Page Number:	41
Suggested Solution:	provide more details on what needs to be done to bring the VLA calibration pipeline up to speed

Description

Developing the calibration pipeline for the VLA into a state similar to ALMA's could be significant work. I assume this is included under the SRDP project because the project will draw lots of effort from the CASA team, and the pipeline is a pre-requisite for the SRDPs. Will there be enough staff effort and is the problem well enough understood to complete the pipeline in the first (small-N) years? How does the problem for the VLA compare to the ALMA experience?

Comments

Comment by Jeff Kern [01/May/18]

There are a few known issues with the VLA pipeline:

- The flux bootstrapping by default is not always right. An improved version has been developed for VLASS and needs to be generalized to the case of multiple bands before it can be applied to general VLA observations.
- There are some choices which are sub-optimum for spectral line work (I've been told, but do not know the details).

Then there are the unknowns, we need to subject the VLA calibration pipeline to ALMA style QA so we can gather statistics about how often the pipeline fails to correctly calibrate data (we just don't have the data for this yet). Finally there is the RFI issue, we will need to have the Data Analysts monitor and address the RFI (using existing tools of RFLAG and TFCROP) and measuring how well they work. There are ongoing, and longer term initiatives to address RFI and SRDP will adopt those as they mature.
The VLA pipeline already automatically executes on nearly every project that comes off the telescope. I would say that the pipeline is at a similar stage to where it was for ALMA in cycle 1 or 2, so two years to bring it up to parity with the ALMA pipeline is achievable (with a caveat about the RFI).

Comment by Robert Treacy [10/May/18]

closed by committee consensus in CoDR

Comment by Robert Treacy [11/May/18]

Note: John Hibbard is working to define metrics for VLA Product QA

1.1.45 [SRDP-75] strain on staff prior to new release Created: 25/Apr/18 Updated: 11/May/18 Resolved: 11/May/18

Status:	Done
Project:	Science Ready Data Products
Component/s:	SRDP-026-MGMT: Cost Management Plan
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Christine Wilson	**Assignee:**	Christine Wilson
Resolution:	Done	**Votes:**	0
Labels:	SRDP_CoDR, SRDP_CoDR_CostModel		

Page Number:	5
Suggested Solution:	confirm staff levels sufficient to handle extra effort required prior to new releases

Description

Document says level of staff is placed under "considerable strain" prior to releases and this should be addressed in the "staffing plan". Is it? I don't remember seeing this anywhere

Comments

Comment by Jeff Kern [02/May/18]

The intention of that comment in the document two fold. First of all to remind all of us that careful management around the release of pipeline version is required, for instance releasing an update to the Archive at the same time would generate conflicts. The second was to designate that this is a minimum level of effort required, the current staffing plan for the VLA is below this level and I think more effort will need to applied to SRDP during release periods.
We have not yet had this negotiation as until VLASS has matured all available effort is focused on that project. I note that we carry this risk in the risk register SRDP-4, but have not yet raised to to the observatory level risk register.

Comment by Robert Treacy [11/May/18]

The "considerable strain" remark was intended to accomplish two things:

- Remind us that careful management around the release of pipeline version is required.
- Designate that this is a minimum level of effort required.

The current staffing plan for the VLA is below this level and more effort is anticipated to apply to SRDP during release periods. To review in NRAO Annual Budget Summit.
This explanation is accepted by consensus with the CoDR review Panel

1.1.46 [SRDP-76] too sanguine about standard vs optimized image product

Created: 25/Apr/18 Updated: 03/May/18 Resolved: 03/May/18

Status:	Done
Project:	Science Ready Data Products
Component/s:	SRDP-019-MGMT: Cost Model
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Christine Wilson	**Assignee:**	Christine Wilson
Resolution:	Done	**Votes:**	0
Labels:	SRDP_CoDR		

Issue Links:	**Relates**			
	relates to	~~SRDP-86~~	standard imaging for ALMA	Done
Page Number:	8			
Suggested Solution:	modify language in this section			

Description

The standard image products currently delivered by ALMA are not useful for science. They can be used to check for detections, look for weak lines, etc, but new images are required for publication. I think the SRDP project underestimates the potential demand for optimized images and overestimates the usefulness of ALMA standard images

Comments

Comment by Christine Wilson [25/Apr/18]

Sorry, the reference document is the Cost Management Plan

Comment by Jeff Kern [02/May/18]

ALMA intends to prepare Science Ready products, and to do this predominantly in Chile, I took those as boundary conditions for the plan. I must admit I share your concerns. In looking back I find I was inconsistent in that I do not have built into the cost model itself a decrease in the number of standard products we do at the NAASC.
Rather than building into the document the assumption that our sibling project, ALMA, will fail to deliver SRDPs on the time of 2020 (which is when optimized imaging is scheduled to start turning on for the SRDP project). I've added this to the risk register:
Risk: ALMA standard products do not meet the needs of the scientific community leading to increased demand for Optimized Imaging from the community.
Probability: 4/5
Impact: 5/5

This would make it one our highest risks and one I'll flag up to the Observatory Risk Register.
And I've added to the paragraph in the cost model:
The current model assumes that ALMA delivers Science Ready products for a substantial fraction of products, if this assumption is violated the optimized imaging demand will be much higher.

1.1.47 [SRDP-77] estimate of operations costs

Created: 25/Apr/18 Updated: 11/May/18 Resolved: 11/May/18

Status:	Done
Project:	Science Ready Data Products
Component/s:	SRDP-026-MGMT: Cost Management Plan
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Christine Wilson	**Assignee:**	Christine Wilson
Resolution:	Done	**Votes:**	0
Labels:	SRDP_CoDR, SRDP_CoDR_CostModel		

Issue Links:	**Relates**			
	relates to	SRDP-122	Concerns about cost model	Post Review Action
Page Number:	10			
Suggested Solution:	provide an estimate of operations costs			

Description

I have not seen anywhere even a rough estimate of the Operations Costs for the SRDP project. This seems to me to be a major oversight - it is no use building and designing a project that is so staff intensive it is too expensive to run

Comments

Comment by Christine Wilson [25/Apr/18]

See also the Project Charter - it seems odd to me that the Operations Plan is a deliverable e.g. that we don't have a first version of it scoped out early (now, even)

Comment by Jeff Kern [02/May/18]

The cost model is an attempt to predict the operations costs, but the uncertainties are very large. Operations for year one after the project will look very much like the cost of the project in the final year. Because we are running the operations within the project there will not be a shock at the transition to operations. The primary cost driver is the DA cadre required for quality assurance.
One cost risk is that SRDPs will drive a substantial increase in the volume of the Archive. Provided all of those SRDPs are being used this is actually a good thing and the observatory will need to allocate funds to support this growth (note that this is managed as part of the overall hardware portfolio managed by DMS).
One of the biggest uncertainties is the uptake and usage from the community. Estimates of the number of jobs vary widely depending on who you ask and when. Feedback from operations is an important part of the rolling wave management strategy. If we find that the system is growing too expensive (either

because of increasing user demand, or increased scope) we will need to find ways to mitigate that cost through increased automation, perhaps at the expense of slowed progress of new capabilities.

Comment by Robert Treacy [11/May/18]

Residual concerns in this ticket have been captured in follow up to SRDP-18 and SRDP-122

1.1.48 [SRDP-78] decomposition of L0 to L1 Created: 25/Apr/18 Updated: 02/May/18 Resolved: 02/May/18

Status:	Done
Project:	Science Ready Data Products
Component/s:	SRDP-003-MGMT: Project Management Plan
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Christine Wilson	**Assignee:**	Christine Wilson
Resolution:	Done	**Votes:**	0
Labels:	SRDP_CoDR		

Page Number:	11
Suggested Solution:	clarify who will do decomposition from L0 to L1 requirements

Description

The document discusses who is responsible for decomposing L1 to L2 requirements. But I have not seen anywhere who is responsible for going from L0 to L1. Or has this been done already and the L1 requirements are considered set? Seems a bit dangerous

Comments

Comment by Jeff Kern [27/Apr/18]

This is covered in section 2.2.2 of the System Engineering Management Plan (I see a +1 vote for ~~SRDP-34~~ "A tangle of documentation"). The answer is that the Project Scientist in conjunction with the SRDP Requirements Committee are responsible for the definition of L1 requirements for each wave of implementation.

1.1.49 [SRDP-79] validation against L1 requirements

Created: 25/Apr/18 Updated: 07/May/18 Resolved: 07/May/18

Status:	Done
Project:	Science Ready Data Products
Component/s:	SRDP-010-MGMT: System Engineering Management Plan
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Christine Wilson	**Assignee:**	Christine Wilson
Resolution:	Done	**Votes:**	0
Labels:	SRDP_CoDR, SRDP_CoDR_Requirements		

Issue Links:

Relates

relates to	SRDP-55	Question on stakeholder requirements ...	Post Review Action
relates to	SRDP-132	Project level I&T plan and QA plan no...	Post Review Action

Page Number:	9
Suggested Solution:	clarify development of L1 requirements

Description

Because testing and commissioning will be done using the L1 requirements, the definition of the L1 requirements is critical. I'm a bit concerned that the system could pass L1 requirements but fail to deliver something that is actually useful and what the users want. How will the L1 requirements be developed to ensure that L0 requirements are met?

Comments

Comment by Robert Treacy [04/May/18]

We needed to establish a means for progressive validation rather than wait until the full capability is reached. Until such time as the full capability is available to commission a particular Use Case (for which the fidelity may build over multiple release cycles), L1 requirements that map to the L0 and ultimately the System Concept will be tracked and validated incrementally. Early delivery of partial capability will provide feedback and allow course corrections at the L1 requirement level to ensure users expectations have been correctly interpreted and implemented. A requirements committee with broad representation within NRAO will work under direction of the SRDP Project Scientist to decompose L0 to L1 at the start of each planning wave. The L1 requirements are imported to the SySML architectural model and linked by relationships within the model to architectural elements.
We have also gone to significant effort to select a Project Scientist that understands the needs of the user community (both ALMA and VLA). Fundamentally the role of the project scientist is to ensure that

the L1s as delivered progressively are working incrementally to satisfy the L0 as defined in the concept document.
see also response to SRDP-55

Comment by Christine Wilson [07/May/18]

explanation is clear

1.1.50 [SRDP-80] stakeholder requirements review running concurrently

Created: 25/Apr/18 Updated: 11/May/18 Resolved: 10/May/18

Status:	Done
Project:	Science Ready Data Products
Component/s:	SRDP-010-MGMT: System Engineering Management Plan
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Christine Wilson	**Assignee:**	Christine Wilson
Resolution:	Done	**Votes:**	0
Labels:	SRDP_CoDR, SRDP_CoDR_Requirements		

Page Number:	15
Suggested Solution:	summaries the results of the StRR and the changes made for the CoDR committee

Description

The stakeholder requirements review is running nearly concurrently with the CoDR. How will the input from the StRR be handled and will the changes/concerns suggested in the StRR be incorporated before the CoDR. If so, it will be a lot less work for the CoDR committee members if a concise summary of the important changes made in response to the StRR could be given to us, rather than having to read through all the documents a second time

Comments

Comment by Jeff Kern [26/Apr/18]

I agree, the original plan was to have the StRR completed before the CoDR but conflicts with important deadlines pushed it back. We will present a list of changes from the StRR to the committee.

Comment by Robert Treacy [10/May/18]

closed by committee consensus in CoDR

Comment by Robert Treacy [10/May/18]

StRR RIDs SRDP-24, SRDP-65, SRDP-91, SRDP-92, SRDP-69 Reviewed in CoDR and disposition deferred to StRR closeout. The SRDP Project Office will communicate with the CoDR review panel following StRR closeout to ensure any conflicts arising between StRR and CoDR recommendations are recognized and resolved.

Comment by Robert Treacy [11/May/18]

SRDP-93 should be added to the list in the previous comment for StRR review

1.1.51 [SRDP-81] experience of SRDP-related systems at ALMA Created: 25/Apr/18 Updated: 15/May/18

Status:	Post Review Action
Project:	Science Ready Data Products
Component/s:	DMSD SRDP Architecure Description
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Christine Wilson	**Assignee:**	Jeff Kern
Resolution:	Unresolved	**Votes:**	0
Labels:	SRDP_CoDR, SRDP_CoDR_Architecture		

Page Number:	5
Suggested Solution:	learn from the ALMA experience?

Description

I am surprised that the architecture is not also learning from SRDP-related systems at ALMA, of which there are a variety (the calibration and imaging pipelines, the ALMA archive, the Japanese Virtual Observatory, etc)

Comments

Comment by Rafael Hiriart [04/May/18]

The SRDP project shares the same pipeline used by ALMA (the CASA Pipeline is used both for ALMA and VLA data). Parts that are not shared are the infrastructure elements used around the pipeline to generate the PPR, fetch input data products, execute the pipeline, support QA, manage the product states, etc. These are sometimes referred as "the workflow". It is only recently that ALMA has formed an ICT development group to take over and develop an architecture for these workflow elements, which have been hitherto implemented as ad hoc scripts and manual procedures. Our intention is to contact this new ICT development group with the expectation to share code and experience.
The new version of the NRAO Archive (a.k.a. the AAT/PPI) shares components with the ALMA Archive. Both systems use the RequestHandler and the ALMA Data Fetcher. The first prototype of the NRAO Archive also used ALMA ObsTAP, but we replaced it because it was not a good match for our system. We plan to connect to the ALMA metadata database in read-only mode, and integrate the ALMA User Database for authentication and authorization. There are other aspects of the ALMA archive that I expect to consider as reference designs in the next iterations of the SRDP project.
I didn't know about the Japanese Virtual Observatory. We intend to incorporate VO interfaces for the NRAO Archive, which will probably be prototyped first for the NRAO VLASS project. We have been mostly interacting with CADC in this area, but we are certainly interested in knowing about the Japanese Virtual Observatory as well.

Comment by Christine Wilson [07/May/18]

The Japanese virtual observatory can be found here
http://jvo.nao.ac.jp/portal/alma.do
aspects of it are rather clunky (I have trouble with the search by object name function), but for a quick and easy way to get a fits image of a target to check for a detection, it is much faster than the main ALMA archive

Comment by Robert Treacy [15/May/18]

Investigate utilities offered through the JVO for application to SRDP, improving upon some of the more useful functionality where practical. for example, The quick fits image is useful but some of the search tools could be improved.
This is related to SRDP-104 which also recommends looking at JVO on line viewer.

1.1.52 [SRDP-82] missing diagrams of top-level packages

Created: 25/Apr/18 Updated: 07/May/18 Resolved: 07/May/18

Status:	Done
Project:	Science Ready Data Products
Component/s:	DMSD SRDP Architecure Description
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Christine Wilson	**Assignee:**	Christine Wilson
Resolution:	Done	**Votes:**	0
Labels:	SRDP_CoDR, SRDP_CoDR_Architecture		

Page Number:	7
Suggested Solution:	include packages when each of the 5 top-level packages listed on this page are introduced

Description

page 7 and later - a diagram is presented for package: Requirements and I found this very helpful in going through the next 6 packages (as I could think of them as sub-packages). But many or all of the subsequent 5 packages do not have diagrams (although their sub-packages do). Maybe this is a feature (not a bug) but I found it confusing

Comments

Comment by Rafael Hiriart [02/May/18]

I included in the architecture document only the packages that have meaningful elements, and omitted some packages that I considered that didn't add much information to the document. I can see, on the other hand, that this organization can be confusing, as there is a mismatch between the model structure and the document structure. I'll include the omitted packages for completeness.
Another modification that I would like to include in a future version is to make the document section levels follow the level of nesting of the packages. This requires modifying the macros that generate the document from the model.

1.1.53 [SRDP-83] duplication of ALMA effort Created: 25/Apr/18 Updated: 07/May/18 Resolved: 07/May/18

Status:	Done
Project:	Science Ready Data Products
Component/s:	DMSD SRDP Architecure Description
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Christine Wilson	**Assignee:**	Christine Wilson
Resolution:	Done	**Votes:**	0
Labels:	SRDP_CoDR, SRDP_CoDR_Architecture		

Page Number:	17
Suggested Solution:	clarify degree of overlap with existing ALMA tools and functions

Description

Will the proposal and observation section duplicate existing ALMA features, such as the observing tool (OT)? Will it add an extra layer on top that the user has to negotiate? Neither would be a good thing

Comments

Comment by Rafael Hiriart [02/May/18]

No, the SRDP project won't implement an alternative ALMA Observation Tool or wrapper. Instead, it will generate requirements for the ALMA OT, which may affect both its phase I and phase II functionalities. Citing section 2.3.1 of the System Concept document (https://safe.nrao.edu/wiki/pub/SRDP/ConceptualDesignReview/530-SRDP-014-MGMT-SRDP_System_Concept.pdf):

For the purposes of SRDP, this interface (Proposal Submission and Observation Planning) captures the scientific intent of the telescope user, and ensures that this intent is properly captured and passed to the downstream processing so that the correct products can be generated. The SRDP project will engage with the appropriate interfaces in ALMA and NRAO to generate specific requirements for the phase1 tool to enable this intent capture. Modification to the phase II tools (OPT and OT) and the online systems may be required to ensure the flow of data through to the post-processing stages. The complex nature of ALMA governance may delay or prevent inclusion of additional requirements in the ALMA OT.

1.1.54 [SRDP-85] archival use not clearly included Created: 25/Apr/18 Updated: 11/May/18

Status:	Post Review Action
Project:	Science Ready Data Products
Component/s:	DMSD SRDP Architecure Description
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Christine Wilson	**Assignee:**	Rafael Hiriart
Resolution:	Unresolved	**Votes:**	0
Labels:	SRDP_CoDR, SRDP_CoDR_Architecture		

Page Number:	24
Suggested Solution:	include archival uses in the description

Description

The 3 step process describes here relates to new observations proposed by a PI. It is not obvious how an archival user interacts here e.g. someone who needs to restore a calibrated uv data set who is not the PI

Comments

Comment by Rafael Hiriart [02/May/18]

I agree. I will modify the description by generalizing step 1, "Proposal submission and observation", to "Product specification", which would include the proposal and schedBlock structures (for PI science), and the structures that control the definition of products for the archive user.

Comment by Christine Wilson [07/May/18]

document to be clairifed

1.1.55 [SRDP-86] standard imaging for ALMA Created: 25/Apr/18 Updated: 07/May/18 Resolved: 07/May/18

Status:	Done
Project:	Science Ready Data Products
Component/s:	DMSD SRDP Architecure Description
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Christine Wilson	**Assignee:**	Christine Wilson
Resolution:	Done	**Votes:**	0
Labels:	SRDP_CoDR, SRDP_CoDR_Architecture		

Issue Links:	**Relates**			
	relates to	~~SRDP-76~~	too sanguine about standard vs optimi...	Done
Page Number:	38			
Suggested Solution:	don't assume the ALMA pipeline is producing good standard images for all projects and sources			

Description

the standard images produced by ALMA generally don't meet all the requirements of the SRDP project. They are generally not useful for science, although they can function as quick look. Sometimes not all the sources are images, sometimes cubes are not generated for all the spectral windows, continuum images can be done using only 1/4 of the total bandwidth, etc. Maybe the ALMA imaging pipeline is going to result in more standardized images but this will be something to keep an eye on.

Comments

Comment by Rafael Hiriart [02/May/18]

As part of the next iteration of requirement elaboration process, the project needs to specify in detail the CASA Pipeline requirements that should result in the generation of products that comply with the SRDP quality standards, for most cases. There are technical and project scheduling risks associated with being able to meet these requirements.
The project will rely on the ALMA QA process for standard imaging products, so there is a risk of these products not meeting the SRDP quality requirements, and therefore an increase in demand for optimized imaging, as annotated in ~~SRDP-76~~.

Comment by Christine Wilson [07/May/18]

response is acceptable

1.1.56 [SRDP-88] description of Requirements Package Created: 25/Apr/18 Updated: 07/May/18 Resolved: 07/May/18

Status:	Done
Project:	Science Ready Data Products
Component/s:	DMSD SRDP Architecure Description
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Christine Wilson	**Assignee:**	Christine Wilson
Resolution:	Done	**Votes:**	0
Labels:	SRDP_CoDR, SRDP_CoDR_Architecture		

Page Number:	7
Suggested Solution:	clarify where the description of "Package: Requirements" can be found

Description

This document does not seem to contain a description of the "Requirements Package"? (I saw the other 4 but couldn't find it). Two other documents are referenced here; if one or both of them function as the description of the Requirements Package, that should be made clearer.

Comments

Comment by Rafael Hiriart [02/May/18]

I will clarify this point in the architecture document and include a description of this package.
The Requirements package has three sub-packages, "Level 0", "Level 1", and "Level 2". The Level 0 package contains the requirements imported from the Stakeholder Requirements document (https://safe.nrao.edu/wiki/pub/SRDP/ConceptualDesignReview/530_SRDP_StakeholderRequirements.pdf). The Level 1 and Level 2 packages are currently empty.

Comment by Christine Wilson [07/May/18]

location of documents clarified

1.1.57 [SRDP-104] Archive Use Case - need for a suitable on-line viewer

Created: 25/Apr/18 Updated: 11/May/18

Status:	Post Review Action
Project:	Science Ready Data Products
Component/s:	SRDP-014-MGMT: System Concept
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Christine Wilson	**Assignee:**	Rafael Hiriart
Resolution:	Unresolved	**Votes:**	0
Labels:	SRDP_CoDR, SRDP_CoDR_Implementation		

Issue Links:	**Relates**			
	relates to	SRDP-117	Archive Use case - data exploration w...	In Review
Page Number:	22			
Suggested Solution:	Clarify if an on line viewer is within SRDP scope			

Description

Section 3.4 refers to the need for a suitable on-line viewer - is this within the SRDP project scope? CASA? or is there some other software that can be reused?

Comments

Comment by Jeff Kern [30/Apr/18]

Creation of the viewer is not within SRDP scope. The baseline choice for this will be the CARTA viewer, although it has been delayed. If it continues to slip and alternative choice must be identified.

Comment by Jeff Kern [07/May/18]

Noting for completeness that I have added risk SRDP-20 to the risk register for the risk that CARTA is not available.

Comment by Robert Treacy [11/May/18]

Investigate and document the suitability for the Japanese Virtual Observatory on line viewer as an alternate in the event CARTA is not available when needed.

1.1.58 [SRDP-121] How SRDP fits into NRAO Created: 25/Apr/18 Updated: 11/May/18

Status:	Post Review Action
Project:	Science Ready Data Products
Component/s:	General Issues (non-document specific)
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Bruce Berriman	**Assignee:**	Robert Treacy
Resolution:	Unresolved	**Votes:**	0
Labels:	SRDP_CoDR, SRDP_CoDR_Context		

Suggested Solution:	Create above document

Description

From the various documents, I find I am trying to tease out how SRDP integrates into the rest of NRAO, and how it uses the resources (human and computational) at the observatory. Comprehension would come much more quickly if there were a short document describing this. needn't be fancy - a block diagram with a few paragraphs of explanation would be all that was needed. It would go a long way towards providing context. I'm not a radio astronomer, so I don't know how all the Observatory teams and functions fit together.

Comments

Comment by Jeff Kern [04/May/18]

Moving to the meeting, where I will try to answer this question.

Comment by Robert Treacy [11/May/18]

Create a short document combining Tony's introduction, stating what services and procedures using from the observatory and the relation of the groups within the observatory. A suggested reading order, brief description of content in each document, high-level objectives, and resource commitments to aid navigation through project documents.

1.1.59 [SRDP-122] Concerns about cost model Created: 26/Apr/18 Updated: 11/May/18

Status:	Post Review Action
Project:	Science Ready Data Products
Component/s:	SRDP-026-MGMT: Cost Management Plan
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Bruce Berriman	**Assignee:**	Robert Treacy
Resolution:	Unresolved	**Votes:**	0
Labels:	SRDP_CoDR, SRDP_CoDR_CostModel		

Issue Links:	**Relates**			
	relates to	~~SRDP-77~~	estimate of operations costs	Done
	relates to	~~SRDP-149~~	DMS Budget Management Plan	Done
Suggested Solution:	Update cost management plan			

Description

I think that using the ALMA model for developing a cost model and cost estimates is indeed the best approach you can realistically take. I do however have a number of concerns which I list below and which, is some cases, the document acknowledges too:

- The SRDP has a model where various departments contribute resources/a pint of blood to the cause. Are you sure you are budgeting enough resources to managing the interfaces with these various departments?
- Would having dedicates resources for SRDP be more efficient, or is this not feasible? *
- We do not appear to have the DMSD budget management plan and so we can't really assess these costs - is there as DMSD cost plan we can look at? *
- How will the uncertainty in estimating FTEs be managed? Honestly, I was a bit alarmed that you don't have a contingency plan. One approach is, e.g., to carry a budget reserve that is large at the beginning, and shrinks as the project matures.
- Other approaches include having large schedule margins, and taking conservatives approaches to development models (e.g. using design to schedule rather than, say, agile if on-schedule delivery is crucial). *
- I think I may be misunderstanding the statement in Section 3.2 that the LoE in the heuristics group will determine the rate of delivery of new capabilities - if this LoE isn't adequate, is it possible that you end up with a backlog of products? *
- Not clear to me who pays for any algorithmic development needed for the development of SRDP products *

- There doesn't appear to be a cost plan for operations.

Comments

Comment by Tracy Clarke [30/Apr/18]

I share the concerns regarding the Cost Management Plan as presented.

Comment by Jeff Kern [02/May/18]

I'm going to reproduce your points and answer them one by one below. One caveat is that this project is an internally funded portion of NRAO operations. That has pros and cons, for instance front loading the project is difficult, but we do not have hard "color of money" issues between construction and operations.

- The SRDP has a model where various departments contribute resources/a pint of blood to the cause. Are you sure you are budgeting enough resources to managing the interfaces with these various departments?

  Honestly I think it would be easier if all I needed was blood. The SRDP project benefits from strong support across the senior management of the observatory. I see interfacing to the other departments as a primary responsibility of the Director position. We benefit from my experience within the DMS Department for the past 12 years, so there are not really barriers to communication.

- Would having dedicates resources for SRDP be more efficient, or is this not feasible?

  We looked at this, having dedicated resources to replace the DMS effort is really not feasible, we're trying to adapt existing tools and infrastructure rather than starting green field. Creating a new structure would duplicate much of what already exists in DMS, and would be prohibitively expensive.
  There are several reasons to use the existing structures for the heuristics and operations teams:

1. At the end of the project there is no re-organization associated with the transition to operations, nearly all of the staff and reporting lines remain the same. Only within the project office is there change (and even there the Project Scientist and Operations Manager remain in place).
2. For the operations staff, this structure allows diversity in terms of workflow. If we allocated them entirely to SRDP, then they would spend the majority of every day reviewing processing results (which can be tedious). This way they are able to have other roles (user support, software testing, etc.) to keep the position rewarding and interesting. (As the document says for the NAASC this value is currently about 60% data processing).
3. This mechanism uses the remainder of the organization to help absorb spikes and lulls in demand. For instance you can imagine a spike in SRDP requests the week before a proposal deadline.

   Of course this comes at the cost of negotiations with the other departments, but I felt the benefits outweighed the costs.

- We do not appear to have the DMSD budget management plan and so we can't really assess these costs - is there as DMSD cost plan we can look at?

I have created ~~SRDP-149~~ so Morgan can address this issue.

- How will the uncertainty in estimating FTEs be managed? Honestly, I was a bit alarmed that you don't have a contingency plan. One approach is, e.g., to carry a budget reserve that is large at the beginning, and shrinks as the project matures. Other approaches include having large schedule margins, and taking conservatives approaches to development models (e.g. using design to schedule rather than, say, agile if on-schedule delivery is crucial).

  This project is fundamentally spend rate limited, rather than total cost limited. The agile approach is designed to produce the most scope for the available cost. We will use large schedule margins (not allocate developers to 100%) to manage expectations for each particular cycle and track the project velocity to update the overall predictions of the project.

- I think I may be misunderstanding the statement in Section 3.2 that the LoE in the heuristics group will determine the rate of delivery of new capabilities - if this LoE isn't adequate, is it possible that you end up with a backlog of products?

  I think key word here is "capabilities". The number of products produced depends on the effort of the operations staff (and to a lesser extent the computation resources). The delivery of new capabilities (support for more standard modes, improved functionality in the optimized imaging cases) is what depends on the LoE of the heuristics group.

- Not clear to me who pays for any algorithmic development needed for the development of SRDP products

  The Algorithm Research and Development Group (ARDG) is a NRAO resource that we can request that type of development from. There is an observatory wide prioritization process, but the SRDP requests are well aligned with observatory strategic goals so will fare well in this process.

- There doesn't appear to be a cost plan for operations.

  Because of the matrixed design of the project (and the fact that DMS is accounted for outside of this cost model) the operations cost is much the same as the cost during construction. The LoE of the heuristics staff may vary depending on other priorities but the operations cost should not change. As I said in ~~SRDP-77~~ there are large uncertainties in this model but as we ramp up to it throughout the project we can manage the operations cost as part of the development program.

Comment by Robert Treacy [11/May/18]

Three actions for follow up:
1) Track contingency in the risk register in terms of schedule
2) Add discussion of Algorithmic development to PM plan operations section.
3) Add discussion of contingency management at the observatory level

1.1.60 [SRDP-123] Closeout question Created: 26/Apr/18 Updated: 11/May/18 Resolved: 11/May/18

Status:	Done
Project:	Science Ready Data Products
Component/s:	SRDP-009-MGMT: Lifecycle Phases and Concepts
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Bruce Berriman	**Assignee:**	Bruce Berriman
Resolution:	Done	**Votes:**	0
Labels:	SRDP_CoDR, SRDP_CoDR_Context		

Page Number:	9
Suggested Solution:	More detail in Section 2.2.5

Description

Section 2.2.5 - I don't think I understand that statement there is no effort needed to retire the project. I would expect that you have to make sure that whoever is managing data and software is trained to do this, that all deliveries are made, reports done and so on.

Comments

Comment by Jeff Kern [27/Apr/18]

One of the advantages of the way we have structured this project (matrix management) is that when the project concludes the exact same people will be in charge of this through operations. We never do a "hand over" to a different group, mostly it is just continued execution.
There will be a modest amount of close out reporting, but since the tools and processes have been accepted incrementally there isn't a big push at the end.

1.1.61 [SRDP-124] Questions on architecture model and related cost questions Created: 26/Apr/18 Updated: 11/May/18

Status:	Post Review Action
Project:	Science Ready Data Products
Component/s:	DMSD SRDP Architecure Description, SRDP-019-MGMT: Cost Model
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Bruce Berriman	**Assignee:**	Robert Treacy
Resolution:	Unresolved	**Votes:**	0
Labels:	SRDP_CoDR, SRDP_CoDR_CostModel		

Suggested Solution:	Extend the document

Description

The architecture document appears to be an architecture model. The document says the architecture is incomplete - when do you plan to complete it?
I have a question on cost: which items in the cost plan refer to implementation of architecture, in contrast to implementation of services? That is, I regard the implementation of architecture - building databases, setting up workspaces etc - a distinct task from the services and applications that are integrated into it. Or does your planning not consider these separate tasks?
How much of your architecture can be re-used or adapted from existing architecture? This would have an obvious impact on cost. I gather that you are planning to integrate into the observatory architecture (which makes perfect sense!) - I am simply unsure as to how much you need to build for SRDP.

Comments

Comment by Rafael Hiriart [02/May/18]

As the SRDP project is using Rolling-wave planning, the architecture model will be completed gradually as necessary for the near term deliverables in each wave to proceed with detailed design and implementation. These deliverables will be based on use cases.
On the other hand, we plan to re-use many of the existing components of our current architecture. I will provide a diagram or table indicating which components will be re-used as they are, which components will require modifications, and which ones are new.
I will assign this ticket to RobertTreacy for him to respond the question about the cost.

Comment by Robert Treacy [04/May/18]

This is internal cost information for DMS, reassigning to you

Comment by Morgan Griffith [06/May/18]

We anticipate that much of the "new" architecture implementation, i.e. databases, software, etc. will involve modification of our existing software vs. creating new. This re-use should require fewer resources than a "greenfield" development, and will build on familiar existing processes for operations. We believe that many of the operational changes will be developed in the Design and Integration stages of each rolling wave, using the allocated DMS development resources, and the SRDP resources, such as the Project Scientist, Operations Manager, data analysts, and other support staff.

Comment by Robert Treacy [11/May/18]

Add the reuse of services to the PM/SE documents and to the document produced by SRDP-121.

1.1.62 [SRDP-125] Data Product and Data Process Quality Management Created: 27/Apr/18 Updated: 15/May/18

Status:	Post Review Action
Project:	Science Ready Data Products
Component/s:	SRDP-003-MGMT: Project Management Plan
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Tracy Clarke	**Assignee:**	Robert Treacy
Resolution:	Unresolved	**Votes:**	0
Labels:	SRDP_CoDR, SRDP_CoDR_Quality		

Page Number:	10
Suggested Solution:	Clarify

Description

In the project management plan there is a clear separation in the Quality Management section of Data Product Quality Management and Data Process Quality Management. Both bullets indicate these measures will be described in a separate document since they are out of scope for the Project Management Plan. Where are those documents and how are/were/will they be reviewed?
They are obviously critical to both providing trusted data products to the community to meet needs. In terms of the Data Process it indicates that 'This is the quality management of the process of delivering data products ...' To clarify, is this referring to the underlying software that is used to derive the products or the interface that is the interface between the users and those products? That interface is critical, great products are useless if they cannot be accessed by the user community.

Comments

Comment by Jeff Kern [01/May/18]

Data product quality management is essentially the QA process that is performed on each product. I anticipate spending a year getting a good definition of this and another implementing and refining it. John Hibbard is already thinking about this based on ALMA experience.
The review of the data product QA process is what we meant by the Data Process Quality Management will be largely how many products the PIs request to have data re-processed because of an issue that makes it through QA. It is also intended to be a measure of how many products require intervention (say the fraction of projects that need to be manually flagged because the automated routine didn't perform correctly).
I think your pointing at something else, which is "How well do the tools we've created allow the user to accomplish their goal?" To me this is validation and we've primarily focused on doing this internally (the Project Scientist and Heuristics team), although using the UC and CUC to do external validation / early adoption is something I am hopeful we will be able to do. We need to do validation of both the

underlying software (CASA, Pipeline, etc) and on the interfaces (Archive Interface, Helpdesk, and Workflow Interfaces). This validation will be be done by the project scientist and heuristics team iteratively as the tools and interfaces are delivered.

Comment by Tracy Clarke [06/May/18]

I think this could be a useful discussion to include in the face to face meeting.

Comment by Robert Treacy [15/May/18]

Build out more detail in the PM Plan for Quality Planning as it applies to Data Products vs. Data Processes, metrics used for each, and include the availability of the quality plan in the schedule.

1.1.63 [SRDP-126] Explain role NRAO UC played in SRDP

Created: 27/Apr/18 Updated: 10/May/18 Resolved: 10/May/18

Status:	Done
Project:	Science Ready Data Products
Component/s:	SRDP-015-MGMT: SRDP Stakeholder Requirements
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Tracy Clarke	**Assignee:**	Tracy Clarke
Resolution:	Done	**Votes:**	0
Labels:	SRDP_CoDR, SRDP_CoDR_Requirements		

Page Number:	6
Suggested Solution:	Clarify the role.

Description

What sort of role is played by the NRAO users committee in the SRDP process? Are they advisory, confirming or do they actively define things? Is this input regular or just at the yearly meetings? The are the connection to the user community so I could imaging they may play a very important role.

Comments

Comment by Jeff Kern [27/Apr/18]

The UC is a very important stakeholder, as is the CASA Users Committee. To date we have asked for their assistance in reviewing the System Concept. This was supposed to be completed prior to the CoDR, but due to the JWST and ALMA deadlines we've ended up doing them concurrently.
Both will of course get updates at their yearly meetings (and at their request at telecons). I am hopeful to keep them engaged (particularly the computing subcommittee) to provide feedback on capabilities during late prototyping or early adoptions phases. I consider it imperative that they become users and assist in socializing the products.
Formally they are advisory to the project and to NRAO.

Comment by Robert Treacy [10/May/18]

SRDP-30, SRD-126, ~~SRDP-137~~ reviewed together, followup is under SRDP-30 to provide written plan to engage non-Radio Astronomy community.

1.1.64 [SRDP-127] Data archive leverage Created: 27/Apr/18 Updated: 06/May/18 Resolved: 06/May/18

Status:	Done
Project:	Science Ready Data Products
Component/s:	SRDP-015-MGMT: SRDP Stakeholder Requirements
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Tracy Clarke	**Assignee:**	Tracy Clarke
Resolution:	Done	**Votes:**	0
Labels:	SRDP_CoDR		

Page Number:	7
Suggested Solution:	Clarify

Description

The document states that the SRDP is implemented in a framework that can leverage resources and specifically mention a 'data archive'. It is not clear what data archive is being referred to but I would like to clarify that the current NRAO data archive to retrieve uv data is close to the point of being useless to find appropriate data and download them. A good interface to identifying and obtaining data is critical.

Comments

Comment by Jeff Kern [02/May/18]

The SRDP project is designed to be incorporated into the new archive that the SSA group has been working on. To remove ambiguity, this is the one accessed from archive-new.nrao.edu it is not yet complete (for instance legacy VLA and GBT data are not yet included).
The SRDP project is a major stakeholder for the archive and will provide requirements to improve the functionality.

1.1.65 [SRDP-128] Rolling wave approach requires revisions to prior requirements/implementation

Created: 29/Apr/18 Updated: 09/May/18 Resolved: 09/May/18

Status:	Done
Project:	Science Ready Data Products
Component/s:	SRDP-010-MGMT: System Engineering Management Plan
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Ian Evans	**Assignee:**	Ian Evans
Resolution:	Done	**Votes:**	0
Labels:	SRDP_CoDR, SRDP_CoDR_Requirements		

Page Number:	11
Suggested Solution:	Clarify process

Description

Since L1/2 requirements are progressively defined, it is possible that new requirements may require revisions to previously developed L1/L2 requirements or their implementations. What SE processes are employed to manage such changes?

Comments

Comment by Robert Treacy [04/May/18]

Yes, we do anticipate that previously developed requirements and implementations may change. Change control is addressed on two levels, following NRAO Standard Practice, through the use of NRAO Standard Operating Procedures (SOPs). There is a concise description in the Project Management Plan Sections 5 & 6. Changes are submitted on standard observatory templates for change orders, which identify the impact of the proposed change.
L0 Requirements – Changes to L0 will likely impact the approved baseline and are escalated to the Observatory Change Control Board (CCB).
L1 Requirements – Changes are typically within the approved baseline and approved by the SRDP Project CCB, where Project CCB members are defined in the Stakeholder register.
L2 requirements – Changes typically have impact at the task level and are approved by the DMS Architect, Group Leads, or Operations Managers depending on the nature of the change.
Changes to previously approved requirements for SRDP also return to the Requirements Committee for evaluation to determine if additional requirements are impacted, further derived requirements are needed, and re-prioritized in the requirements queue for introduction into the appropriate planning wave.

1.1.66 [SRDP-129] Define project-level (L0) MVP and implementation timescale Created: 29/Apr/18 Updated: 11/May/18

Status:	Post Review Action
Project:	Science Ready Data Products
Component/s:	SRDP-032-MGMT: Scope Statement
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Ian Evans	**Assignee:**	Robert Treacy
Resolution:	Unresolved	**Votes:**	0
Labels:	SRDP_CoDR, SRDP_CoDR_Requirements		

Page Number:	4
Suggested Solution:	Clarify

Description

Since the SRDP project is LoE resourced (and also a fraction of the development effort is performed by organizations that are outside of direct control by the project), a project-level (L0) minimum viable product (to be completed within an agreed-upon implementation timescale) that is acceptable to the stakeholders should be defined as part of the project acceptance criteria. Descope options if the full product cannot be developed on the agreed-upon timescale should be defined.

Comments

Comment by Robert Treacy [04/May/18]

Yes, thanks for this good suggestion. It is our oversight for not being more explicit. We defined this for the L1 implementation waves, but took for granted it would reflect back to the L0 requirements. I have added a statement to the Scope Statement and Systems Engineering Management Plan to explicitly include an approved MVP for the L0 requirements on the overall project.

Comment by Ian Evans [09/May/18]

Discuss "upfront" vs. "reflected back" L0 MVP/timescale.

Comment by Robert Treacy [11/May/18]

define the MVP for the project as a whole, including the implementation timescale, and de-scope options to fit within the timeframe.

1.1.67 [SRDP-130] Cost Management Plan should reference a robust BoE

Created: 29/Apr/18 Updated: 11/May/18

Status:	Post Review Action
Project:	Science Ready Data Products
Component/s:	SRDP-026-MGMT: Cost Management Plan
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Ian Evans	**Assignee:**	Robert Treacy
Resolution:	Unresolved	**Votes:**	0
Labels:	SRDP_CoDR, SRDP_CoDR_CostModel		

Page Number:	5
Suggested Solution:	Document the BoE used by the CMP.

Description

Since the SRDP project is LoE resourced (and also a fraction of the development effort is performed by organizations that are outside of direct control by the project), the Cost Management Plan should reference a robust Basis of Estimate that demonstrates that a project-level MVP can be developed and deployed within an agreed-upon timescale within the LoE constraints of the project and a minimum level of support from supporting organizations.

Comments

Comment by Jeff Kern [04/May/18]

The Cost Management Plan is our best current analysis of what SRDP will cost, but agree that it does not answer the questions you pose. This item should be carried to the meeting for discussion.

Comment by Jeff Kern [04/May/18]

Marking for follow up at the review meeting.

Comment by Robert Treacy [11/May/18]

Develop a BoE

1.1.68 [SRDP-131] Formalize interfaces with external organizations Created: 29/Apr/18 Updated: 09/May/18 Resolved: 09/May/18

Status:	Done
Project:	Science Ready Data Products
Component/s:	SRDP-003-MGMT: Project Management Plan
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Ian Evans	**Assignee:**	Ian Evans
Resolution:	Done	**Votes:**	0
Labels:	SRDP_CoDR, SRDP_CoDR_Context		

Page Number:	16
Suggested Solution:	Clarify how these agreements are formalized.

Description

The PMP states "... supporting departments shall be advised to track their risk independently...". Interfaces with external organizations such as DMSD should be formalized through ICDs or Memoranda of Agreement.

Comments

Comment by Jeff Kern [02/May/18]

I am not certain that this level of formality is warranted. The Data Management and Software Department (DMSD) is internal to NRAO, as are the other Departments. SRDP is an observatory objective that all of the departments support. The line in the PMP is largely a reflection that the budget for SRDP is not being removed from the other departments. I'm happy to discuss at the meeting (it might be good to have opinions from the other stakeholders that will be present).

1.1.69 [SRDP-132] Project level I&T plan and QA plan not present in review package Created: 29/Apr/18 Updated: 15/May/18

Status:	Post Review Action
Project:	Science Ready Data Products
Component/s:	SRDP-010-MGMT: System Engineering Management Plan
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Ian Evans	**Assignee:**	Robert Treacy
Resolution:	Unresolved	**Votes:**	0
Labels:	SRDP_CoDR, SRDP_CoDR_Quality		

Issue Links:	**Relates**			
	relates to	SRDP-79	validation against L1 requirements	Done
Suggested Solution:	Complete initial versions of these project level documents.			

Description

The SEMP includes very high level descriptions of development integration and verification plan, and the development quality assurance plan. I could not find either the project level integration and test plan or the project level quality assurance plan for review.

Comments

Comment by Robert Treacy [04/May/18]

Software Integration and Testing is done by the DMS Integration Team, within DMS under direction of the DMS Architect. This is described in Section 5 of the DMSD Work Management Plan for SRDP. Test plans for each wave are created as a function of the architectural design.
Project level integration involves software integration into Operations and will be defined as part of the Operations Readiness planning. This is reviewed prior to going live with a production release under the Systems Engineering Management Plan Sec 7.2.2.
Project level testing/validation is based on the progressive verification of L1 requirements until such time as a capability is ready to fully commission. We will have interaction with the user community as capability is progressively delivered, with the intention that we can make course corrections as needed to reach full commissioning.
Project level QA is still at the conceptual level. We are in the process of defining the quality metrics on which quality processes will be based.

Comment by Ian Evans [09/May/18]

Insufficient information to mark complete.

Comment by Robert Treacy [15/May/18]

Clarify Sec 7.2.2 of the SEMP with content in Slide 4 of the Quality Presentation, Elaborate detail in the DMSD Work Management Plan for SRDP with respect to how S/W integration, test, and verification plans and processes will be developed for each wave.

1.1.70 [SRDP-134] ALMA governance delays/prevents SRDP observation planning changes

Created: 30/Apr/18 Updated: 09/May/18 Resolved: 09/May/18

Status:	Done
Project:	Science Ready Data Products
Component/s:	SRDP-014-MGMT: System Concept
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Ian Evans	**Assignee:**	Ian Evans
Resolution:	Done	**Votes:**	0
Labels:	SRDP_CoDR, SRDP_CoDR_Context		

Page Number:	9
Suggested Solution:	Clarify

Description

The document states (sec 2.3.1) "The complex nature of ALMA governance may delay or prevent inclusion of additional requirements in the ALMA OT." What would be the impact on the SRDP project plan if revisions to the ALMA OT to support capture and propagation of data to support flow of data to post-processing stages are delayed or prevented? Are there alternate mechanisms to satisfy these requirements?

Comments

Comment by Jeff Kern [02/May/18]

Any meta-data that is not captured at proposal time would need to be supplied by a user at a later time. The primary issue is that automated processes will not have access to the data, so the user will be forced to use the optimized imaging interfaces and supply additional information there.
I think there is no risk of loss of functionality, "just" an ease of use issue.

1.1.71 [SRDP-135] Large Projects QA quality Created: 30/Apr/18 Updated: 11/May/18

Status:	Post Review Action
Project:	Science Ready Data Products
Component/s:	SRDP-014-MGMT: System Concept
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Ian Evans	**Assignee:**	Jeff Kern
Resolution:	Unresolved	**Votes:**	0
Labels:	SRDP_CoDR, SRDP_CoDR_Quality		

Page Number:	34
Suggested Solution:	Clarify

Description

In the Large Projects use case, the document states "The project team will need to be involved in the QA process and ultimately is responsible for the scientific integrity of the products." Is there a process for defining an acceptable QA level for large project data products? Will the QA level for such products be comparable to that for other similar SRDP archived products? Archive users will likely naively expect that similar products that have passed QA will have similar levels of quality.

Comments

Comment by Jeff Kern [02/May/18]

The QA for these products will be labelled as performed by the project, and we will require the project to have clearly stated what their QA process is before the products are ingested so there is some level of information available to the end user.
However I suspect that their is an issue that the users may not notice or follow up and read the provided documentation. I think our protection from this is three fold:
1) All large project have to provide a data management plan and that should include the QA process so it will be reviewed as part of the proposal process.
2) The large proposals tend to be power users, so they are putting their reputation at stake so I suspect they will perform adequate QA.
3) From the requirements review a signal that many of these projects will opt into just using the SRDP processes is coming through. This is not what I expected but will at some level mitigate the variance in QA.

Comment by Ian Evans [09/May/18]

I think you comments certainly indicate that the concern is mitigated. I recommend some statement to this effect be added to the QA plan.

1.1.72 [SRDP-136] SRDP non-functional requirements Created: 30/Apr/18 Updated: 11/May/18

Status:	Post Review Action
Project:	Science Ready Data Products
Component/s:	SRDP-015-MGMT: SRDP Stakeholder Requirements
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Ian Evans	**Assignee:**	Jeff Kern
Resolution:	Unresolved	**Votes:**	0
Labels:	SRDP_CoDR, SRDP_CoDR_Requirements		

Suggested Solution:	Identify L0 non-functional requirements.

Description

The Stakeholder Requirements document includes a large number of high-level SRDP functional requirements in section 3. Where are the high-level SRDP non-functional requirements (e.g., performance, scalability, availability, reliability) specified?

Comments

Comment by Robert Treacy [04/May/18]

We have discussed this and understand these types of non-functional requirements to be defined at the system level as L1 requirements. We plan to use feedback from early operations to more fully characterize these requirements.

Comment by Ian Evans [09/May/18]

Discuss at meeting.

Comment by Robert Treacy [11/May/18]

Provide a table of initial performance goals.

1.1.73 [SRDP-137] User Community Needs Definition

Created: 30/Apr/18 Updated: 10/May/18 Resolved: 10/May/18

Status:	Done
Project:	Science Ready Data Products
Component/s:	SRDP-005-MGMT: Stakeholder Register
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Tracy Clarke	**Assignee:**	Tracy Clarke
Resolution:	Done	**Votes:**	0
Labels:	SRDP_CoDR, SRDP_CoDR_Requirements		

Page Number:	3
Suggested Solution:	The Users Committee is the most likely starting point for helping with these definitions but experienced users from the VLA and ALMA communities would be quite valuable to help guide the list of needs.

Description

The SRDP Project Scientist expectation is to ensure "Requirements are complete, validated, and needs are met within the user community.' How are the needs of the community defined and prioritized?

Comments

Comment by Jeff Kern [02/May/18]

In broad scope this is currently being checked by the Stakeholder Requirements Review which is using the Users Committee and the CASA Users Committee as proxies for the community. We will continue to engage with these proxies through their annual meetings and as needed in between (for instance the Requirements Review was initiated by the SRDP projects request for assistance. We will use meetings (AAS, IAU, topical science, etc) to try to reach out to the broader community.
As the project progresses, I suspect that we will receive feedback from many quarters, the role of the Project Scientist will transition from soliciting feedback to synthesizing and prioritizing the feedback we receive.

Comment by Robert Treacy [10/May/18]

SRDP-30, SRD-126, SRDP-137 reviewed together, followup is under SRDP-30 to provide written plan to engage non-Radio Astronomy community.

1.1.74 [SRDP-138] Correction of color key Created: 30/Apr/18 Updated: 30/Apr/18 Resolved: 30/Apr/18

Status:	Done
Project:	Science Ready Data Products
Component/s:	SRDP-008-MGMT: Responsibility Matrix
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Tracy Clarke	**Assignee:**	Tracy Clarke
Resolution:	Duplicate	**Votes:**	0
Labels:	SRDP_CoDR		

Issue Links:	**Duplicate**			
	duplicates	~~SRDP-50~~	Errors in color coding?	Done
Page Number:	1			
Suggested Solution:	Correct color code.			

Description

The Inform and Consult color code is inverted between the table and legend.

Comments

Comment by Jeff Kern [30/Apr/18]

This is a duplicate of ~~SRDP-50~~, which has already been fixed although. To avoid confusion we are not updating documents in the review packet as issues are addressed.

1.1.75 [SRDP-139] VLASS requirements evolution Created: 30/Apr/18 Updated: 06/May/18 Resolved: 06/May/18

Status:	Done
Project:	Science Ready Data Products
Component/s:	SRDP-006-MGMT: Risk Register
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Tracy Clarke	**Assignee:**	Tracy Clarke
Resolution:	Done	**Votes:**	0
Labels:	SRDP_CoDR		

Page Number:	1
Suggested Solution:	Closely monitor the high demand. Are the changes within the scope of the VLASS project?

Description

Why are the VLASS requirements evolving and for what period is this expects to place high demand on the DMS? Is there a contingency plan for dealing with continued evolution of the VLASS requirements?

Comments

Comment by Jeff Kern [02/May/18]

VLASS is currently between the two rounds of observations that constitute the first epoch. A number of issues were found (both in software, hardware, and the data) during the first round of observation. The team has dealt with most of these and is working on developing the heuristics for the Single Epoch image production (to be completed by approximately 10 months from now).
As this is the first round of observations, I think it is natural that they are finding unexpected issues and dealing with them. Many of these issues that they are solving would need to be solved within the SRDP project otherwise so I don't necessarily see it as a conflict. If these continue to evolve after the first round of single epoch imaging then I think it is an issue and will need to elevate it. For now it is on the RIsk Register so that we do exactly as you recommend and monitor the situation.

1.1.76 [SRDP-140] Project Scientist Created: 30/Apr/18 Updated: 01/May/18 Resolved: 30/Apr/18

Status:	Done
Project:	Science Ready Data Products
Component/s:	SRDP-006-MGMT: Risk Register
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Tracy Clarke	**Assignee:**	Tracy Clarke
Resolution:	Fixed	**Votes:**	0
Labels:	SRDP_CoDR		

Page Number:	1
Suggested Solution:	Clarify current status of Project Scientist and re-evaluate recruiting.

Description

Has the hiring of the Project Scientist progressed or been escalated in priority? This seems a very high risk if the position cannot be quickly filled.

Comments

Comment by Jeff Kern [30/Apr/18]

I am pleased to report that we now have an accepted appointment for the project scientist.

1.1.77 [SRDP-141] Optimized vs Standard Imaging

Created: 30/Apr/18 Updated: 06/May/18 Resolved: 06/May/18

Status:	Done
Project:	Science Ready Data Products
Component/s:	SRDP-019-MGMT: Cost Model
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Tracy Clarke	**Assignee:**	Tracy Clarke
Resolution:	Done	**Votes:**	0
Labels:	SRDP_CoDR		

Page Number:	7
Suggested Solution:	Clarify.

Description

Why are the resources for optimized imaging less than those for standard imaging?

Comments

Comment by Jeff Kern [02/May/18]

I'm not sure where exactly you are referring to. On page 9 of the cost model there is the table that has:

- ALMA Standard Products 2.5
- ALMA Recalibration: 4
- ALMA Optimized Imaging: 2

Here the standard products include both calibration and imaging.
For the VLA the optimized imaging is assumed to be less than the standard imaging because we will have the user in the loop to assist with the QA effort and refining the processing request for a re-execution when needed.
Was that where you were looking?

Comment by Tracy Clarke [06/May/18]

Yes, it was the VLA standard ad optimized imaging that I was confused by so that clarifies things. Thanks.

1.1.78 [SRDP-142] QA Effort Model Created: 30/Apr/18 Updated: 04/May/18 Resolved: 04/May/18

Status:	Done
Project:	Science Ready Data Products
Component/s:	SRDP-019-MGMT: Cost Model
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Tracy Clarke	**Assignee:**	Tracy Clarke
Resolution:	Done	**Votes:**	0
Labels:	SRDP_CoDR		

Page Number:	7
Suggested Solution:	Clarify.

Description

Are the QA Effort Model numbers listed for VLASS and ALMA current actual numbers? Specifically for VLASS do they take into account issues reported elsewhere related to the evolution of VLASS requirements?

Comments

Comment by Jeff Kern [02/May/18]

These numbers are based on the available VLASS and ALMA numbers at the time. Claire has recently updated her values, and I will amend the document to use the updated VLASS numbers after this review. The evolution of VLASS requirements actually affects the heuristics team more than the QA aspects, they have been fairly successful in automating QA.

1.1.79 [SRDP-143] Data Product Quality Management Created: 01/May/18 Updated: 15/May/18

Status:	Post Review Action
Project:	Science Ready Data Products
Component/s:	SRDP-010-MGMT: System Engineering Management Plan
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Tracy Clarke	**Assignee:**	Robert Treacy
Resolution:	Unresolved	**Votes:**	0
Labels:	SRDP_CoDR, SRDP_CoDR_Quality		

Page Number:	14
Suggested Solution:	Clarify status of Data Product Quality Management document.

Description

Section 5 refers to a Data Product Quality Management being described in a separate document, I don't recall seeing anything detailed on that, is that something still under development?

Comments

Comment by Jeff Kern [02/May/18]

Yes it is still under development and I expect it to be a large effort. I talked a bit about this in SRDP-125. John Hibbard has started working on this and I expect about a year to fully develop the plan. Then implementation and correction I suspect will be another year before it is really mature. This is one of the areas where we are leveraging the ALMA experience and trying to develop a consistent concept for all NRAO telescopes.

Comment by Tracy Clarke [06/May/18]

A brief discussion of the developments plans for this document, associated risks and timeline would be beneficial.

Comment by Robert Treacy [15/May/18]

Ensure that Data Product Quality Management planning is in the documentation and schedule to be ready in time to validate L1 requirements.

1.1.80 [SRDP-144] Non conforming calibration Created: 01/May/18 Updated: 04/May/18 Resolved: 04/May/18

Status:	Done
Project:	Science Ready Data Products
Component/s:	SRDP-014-MGMT: System Concept
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Tracy Clarke	**Assignee:**	Tracy Clarke
Resolution:	Done	**Votes:**	0
Labels:	SRDP_CoDR		

Page Number:	10
Suggested Solution:	Clarify the modes considered standard calibration in documentation. I can imagine that they may be initially limited to the simplest modes with possible expansion rolled out as the SRDP project gets more experience.

Description

Section 2.4.1 states that proposers requiring non-conforming calibration can 'opt-out' of the standard calibration. There are a wide range of WIDAR capabilities and a wide range of possible calibration needs. I did not see anywhere what will be considered 'standard' calibration and how broad that will be.

Comments

Comment by Jeff Kern [02/May/18]

You are absolutely correct, we will start with the simplest of modes and then try to broaden scope as necessary. The ALMA experience is that with only one or two variations most projects can be accommodated. I'm afraid we can't be more detailed in our definition yet, setting the boundaries for the initial modes for the VLA will be one of the first things the project scientist will do (late this summer). This is one of the areas where I am unable to fill the role of the project scientist.

1.1.81 [SRDP-145] LBO integration Created: 01/May/18 Updated: 04/May/18 Resolved: 04/May/18

Status:	Done
Project:	Science Ready Data Products
Component/s:	SRDP-015-MGMT: SRDP Stakeholder Requirements
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Tracy Clarke	**Assignee:**	Tracy Clarke
Resolution:	Done	**Votes:**	0
Labels:	SRDP_CoDR		

Page Number:	7
Suggested Solution:	It would be good to hear how the SRDP project has responded to the NSF request.

Description

Are there additional details on now the SRDP project could handle a potential LBO integration? How complex would it be to provide products for LBO and how large of an addition might this be to the budget and risks?

Comments

Comment by Jeff Kern [02/May/18]

The short answer is no we have not developed that plan yet, although Walter Brisken is involved in the SRDP Requirements Committee. In some ways the VLBA is easier than the VLA. But there is a much longer road to bring VLBA into the SRDP fold.
We first need to be able to process the data through CASA (this is in progress through the efforts of the JIVE and Black Hole Cam team). We need to modify the VLBA observing to better capture intent and to be more regular (part of this is the ongoing PST rework) and then we can begin developing the pipeline. I don't think it is likely standard imaging of the VLBA will be completed within the next five years. A detailed plan will be developed with the LBO team including identifying additional resources that can be brought to the SRDP project.

1.1.82 [SRDP-146] Image formats Created: 01/May/18 Updated: 06/May/18 Resolved: 06/May/18

Status:	Done
Project:	Science Ready Data Products
Component/s:	SRDP-015-MGMT: SRDP Stakeholder Requirements
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Tracy Clarke	**Assignee:**	Tracy Clarke
Resolution:	Done	**Votes:**	0
Labels:	SRDP_CoDR		

Page Number:	13
Suggested Solution:	Much of the community is familiar with FITS format as it works well in others tools such as ds9 but what other formats are likely needed?

Description

The image formats are still listed as TBD.

Comments

Comment by Jeff Kern [02/May/18]

I think this is in the section on "General Public" so the focus is not on professional astronomers but rather on amateur astronomers, illustrators, school students, etc. This is part of the NRAO Education and Public Outreach effort. I could imagine that they might prefer jpeg or tiff or some other non-scientific format. Suzi Gurton (head of the NRAO AD for EPO has the action to tell us what formats she recommends).

1.1.83 [SRDP-147] Validation button Created: 01/May/18 Updated: 04/May/18 Resolved: 04/May/18

Status:	Done
Project:	Science Ready Data Products
Component/s:	SRDP-015-MGMT: SRDP Stakeholder Requirements
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Tracy Clarke	**Assignee:**	Tracy Clarke
Resolution:	Done	**Votes:**	0
Labels:	SRDP_CoDR		

Page Number:	25
Suggested Solution:	Clarify responsible party.

Description

The 'validation button' is mention in various places as well as here for Use case 3. Who is responsible for pressing the button to ensure ingestion into the archive? If it is the user is there some plan for pressing the button to 'unlock' full data access as a means to ensure it gets pressed?

Comments

Comment by Jeff Kern [02/May/18]

You are correct it is the user. I expect we will need to have a delinquent policy where after some time period the observatory makes the decision one way or another.
I don't see how we could give the user enough access to understand if the data is good while still withholding enough information to use as a carrot for clicking the button. Hopefully most users would simply be good citizens provided we make it easy enough. For those that forget one of the requirements is to be able to get a list of user QA that is pending so we can send reminders.
If it is a widespread problem we could think about some form of "You have N outstanding jobs, your current request will not be submitted until you have accepted or rejected previous results." But to me that feels a bit draconian for a service organization.

1.1.84 [SRDP-148] Network load? Created: 01/May/18 Updated: 04/May/18 Resolved: 04/May/18

Status:	Done
Project:	Science Ready Data Products
Component/s:	DMSD SRDP Architecure Description
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Tracy Clarke	**Assignee:**	James Robnett
Resolution:	Done	**Votes:**	0
Labels:	SRDP_CoDR		

Suggested Solution:	Clarify if this is a concern.

Description

Currently large visibility files from the VLA can take a long time to download. I can imaging that with more images available there will be a larger set of requests for (admittedly smaller) images. Has there been any study to determine expected impact on the network capabilities and specifically if the network is expected to handle the anticipated load?

Comments

Comment by James Robnett [03/May/18]

Hi Tracy, James Robnett here answering for SRDP.
Realized download rates for individual file sets are usually dominated by the requesting end's network and, or the method the individual uses to download the data, e.g serially scp'ing each file. The internal network and external networks are capable of sustaining high transfer rates. As an example while testing VLASS processing on XSEDE and Amazon Web Services (AWS) we regularly transferred raw SDM/BDF data sets at 500MB/s with bursts over 600MB/s, 20 times observe rate. The transfer was intentionally limited to those speeds to avoid impacting normal traffic.
Both the New Mexico Array Science Center (NMASC) and North American ALMA Science Center (NAASC) have 10gbit connections to Internet2 which in theory can sustain 1GB/s. Currently the two links experience around 10% utilization (1gbit sustained) so there is substantial unused bandwidth.
That said the the point of user experience and slow download rates is valid and will be more pronounced with larger products. To that end both the NMASC and NAASC will be installing dedicated hosts for data transfer to ensure there are no local bottlenecks. In addition we are implementing or considering:

- installation of Globus Online endpoints to facilitate batch parallel transfers.
- Improving existing documentation (https://info.nrao.edu/computing/guide/cluster-processing/data-storage-and-retrieval) to address more advanced data transfer schemes.

- staging data to external facilities like AWS for very large products which may experience multiple requests. For example multiple full spectral resolution cubes as part of a large EVLA or ALMA team project.

The NRAO constantly monitors link saturation and has alert systems in place if utilization crosses 90% utilization. In the event that SRDP does result in sustained link saturation there should be a year or more warning as we approach that threshold.
Lastly the Computing Infrastructure staff is always open to suggestions or reports of issues so if there are ongoing issues with transfer rates a ticket to helpdesk@nrao.edu would be appropriate.
If you have any other questions or concerns I'd be happy to answer them.

1.1.85 [SRDP-149] DMS Budget Management Plan Created: 02/May/18 Updated: 10/May/18 Resolved: 10/May/18

Status:	Done
Project:	Science Ready Data Products
Component/s:	SRDP-019-MGMT: Cost Model
Affects Version/s:	None

Type:	Review item Discrepancy	**Priority:**	Minor
Reporter:	Bruce Berriman	**Assignee:**	Bruce Berriman
Resolution:	Done	**Votes:**	0
Labels:	SRDP_CoDR, SRDP_CoDR_CostModel		

Issue Links:	**Relates**			
	relates to	SRDP-122	Concerns about cost model	Post Review Action
Suggested Solution:	TBD			

Description

This is one bullet in a list of items from SRDP-122 I have broken it out so that Morgan can address the item.

- We do not appear to have the DMSD budget management plan and so we can't really assess these costs - is there as DMSD cost plan we can look at?

Comments

Comment by Morgan Griffith [03/May/18]

The DMS approach to costing is described in the "Budget and Resources" section of "DMSD Work Management Plan for SRDP." As this is our best guess and what the DMS development effort will be, and as we do plan to revise it as we work through the requirements, we haven't estimated the effort beyond three years. It is probably useful to note that this is a re-prioritization of work for existing resources vs. a set of new resources.
As noted in the same section, the hardware costs will be managed as part of the overall hardware capabilities budget, i.e. ramp up slowly, so we don't shock the system.

Comment by Robert Treacy [10/May/18]

closed by committee consensus in CoDR

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