Science Ready Data Products
Requirements Committee Terms of Reference
Project 530

PREPARED BY	ORGANIZATION	DATE
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Change Record

VERSION	DATE	REASON
1.0	July 24, 2017	Initial Version
2.0	Sep 28, 2017	incorporate comments during approval workflow

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1   OVERVIEW

The Science Ready Data Products (SRDP) project is an initiative designed to remove a significant amount of burden and overhead from the user that is associated with data calibration and imaging, allowing NRAO users to focus much less on data reduction and much more on the cutting-edge science enabled by the VLA and ALMA. As such, SRDPs are an important means of expanding the NRAO user base. Development of SRDPs is a key deliverable under NRAO's Cooperative Agreement with the NSF and the Program Operating Plan, supported by internal funding.

The high-level goal of the SRDP project is to maximize NRAO's science impact, especially along the scientific directions highlighted by the Astro2010 Decadal Survey *New Worlds, New Horizons*, and to be accessible to the broadest cross-section of the U.S. astronomy community.

The SRDP project will develop and implement the software tools, scientific heuristics, and operations structures to deliver science quality data products to the NRAO user community, both as it exists now, and the foreseen expansion of the community to include non-traditional radio astronomers. Science Ready Data Products span the range from calibrated visibilities, through imaged and de-convolved data cubes, to "value added" products such as source and spectral line catalogs and moment maps.

Science Ready Data Products is a functional definition. The SRDP Requirements Committee will develop and maintain the requirements for the SRDP project.

2   SCOPE AND PURPOSE

This document defines the membership of the SRDP Requirements Committee, identifies interfaces between the committee and the SRDP project, and elucidates the charge to the committee.

3   CHARGE TO THE COMMITTEE

3.1   Background

Three levels of requirements and their management are described in detail in the SRDP system engineering management plan (530-SRDP-010-MGMT).   For the purposes of this document they may be summarized as:

- L0:   User requirements expressed in terms applicable to their needs or use cases "Stakeholder Requirements"
- L1:   Requirements expressed in technical functional or performance terms, but still implementation agnostic ("System Level Requirements")
- L2:   Requirements that define a specification for an element of the system, presuming an architecture ("Sub System Requirements")

Fundamentally, the role of the committee is to communicate the needs of the users by translating the functional definition of science ready data products into stakeholder requirements. The committee will also collaborate with the Project Scientist and System Engineer to further decompose to L1 requirements.

The Requirements Committee is charged with developing:
- A concept for operations of SRDP in the steady state (post project).
- The set of Level-0 (Stakeholder) requirements consistent with the concept of operations. These requirements should reflect the operating state of the capability and shall span the entirety of the SRDP life cycle.
- The cyclical definition and prioritization of Level-1 (System) requirements.

The L0 and concept of operations will be reviewed by external members of the community prior to implementation to ensure that the scope and goals of the project properly reflect community interests.

The Requirements Committee shall provide clarification, interpretation, and if necessary re-prioritization of the Level-1 requirements.
- Provide representation on all formal project reviews such as requirements, conceptual design, preliminary design, final design, and operational readiness reviews.
- The committee shall support the Project Scientist with expert advice on matters regarding verification and validation.

The Project team, in particular the SRDP Heuristics Group under the leadership of the Project Scientist will be responsible for the verification and validation that the system and all technical requirements have been met.

4 COMMITTEE ORGANIZATION

4.1 Committee Membership

- The membership of the SRDP Requirements Committee will be members of the NRAO staff. Two members will be appointed by each of:
  - AD Science Support and Research
  - AD North American ALMA Operations
  - AD New Mexico Operations
  - AD Data Management and Software
- An observer appointed by the Director of the LBO will be included in the requirements committee to assess potential use of SRDP for delivering VLBA data products. At such time the VLBA anticipates formal involvement, proposed requirements shall be evaluated under the SRDP change control process to assess the impact on project baseline and resources.

4.2 Committee Chairperson
- The Project Scientist of the SRDP project is the chair of the requirements committee *ex officio*, and is accountable for the delivery of the L0 and L1 requirements to the project.
- If a project scientist is not in place the Project Director will serve as the chair the committee *pro tem.*