

Summary Development plan for Off-line Data Reduction for ALMA releases: R1, R1.1

The following summarizes the Off-line Reduction commitments for ALMA releases R1 and R1.1. Audit functionality improvements refer to the “Audit of the AIPS++ Package for ALMA Offline Data Processing”, using that document’s requirement enumeration. Functionality improvements for this period refer to discrete improvements or additions to the existing functionality; additional effort/progress will be seen in other areas of the requirements, particularly in the operational and interface areas (Sections 1 and 2, respectively) and should be commented upon in integrated testing reports. The full plan with more detailed information on targets is available at the AIPS++ Project Office Page (<http://aips2.nrao.edu/projectoffice>). Committed resources during this period include 3.25 FTEs per month through NRAO with an additional 1.5 FTEs available in the last quarter of 2003 (new hires to fill existing vacancies). ALMA contributions total 1.5 FTEs throughout this period, with an additional 0.25 FTEs per month dedicated to simulator development. Development labeled as ‘external’ indicates that resources outside of NRAO/ALMA will be utilized; these typically represent non-committed FTE resources from within these organizations or from collaborating organizations.

R1 – October 1, 2003

<u>Audit – Functionality Improvements</u>	<u>Requirement</u>
Continuum Subtraction	(5.2-5)
Data Calibration Enhancements	(4.1-3)
Viewing cursor position enhancements	(7.1-5)
Blinking prototype	(7.1-3)
Atmospheric calibration	(4.2-1)
Atmospheric correction of amplitudes	(4.2-3)
Single Dish/Synthesis data combination	(5.2-6; external)
Add Local Group, Rest to supported velocity frames	(3.1-12.8; external)
Explore Qt/viewer speedups	(7.2-3; progress)

Performance

Implement efficiency improvements in imager as demonstrated in benchmarking document (Single channel simulated VLA data set with 125K visibilities in 2 IFs – see <http://aips2.nrao.edu/projectoffice/b.ps> for full details). Imaging comparisons will improve to within a factor of 2 for Gildas (256x256) and AIPS (up to 2Kx2K).

Specific ALMA benchmark tests will be designed and implemented; automated runs will be performed and posted publically (via web publication).

Robustness

All developer’s have 25% time allocated for testing/defect resolution. New functionality will have associated assay/unit tests for automated assessment in compliance with AIPS++ standards. Internal testing coordinated through the Project Scientist will take place at the end of each project Stable Snapshot cycle; this predates the ALMA project integrated testing phases.

Infrastructure

MeasurementSet GAIN subtable design/review
MeasurementSet revision design/review
Multiple spectral window imaging (enhancement required for integrated testing)
Region specification design (required for 5.2-5, etc)

vlafiller enhancements (required for 4.2-2, etc)
ALMA Prototype Pipeline
Initial Phase A (Report due 15-October-2003)

R1.1 – April 1, 2004

Audit – Functionality Improvements

Calibration interpolation	(4.1-5)
Plot selection enhancements	(7.2-1)
Viewer overlay improvements	(7.2-6.3)
MS concatenation/split capability	(3.1-20.1:5)
Mplot zoom enhancements	(7.2-2)
Calibration enhancements	(4.3-4)
Calibration enhancements	(4.3-5)
Statistical editing of data	(4.1-6.7.1:4)
Data selection improvements	(7.3-2)
Editing of calibration solutions	(4.1-12)
General quantity editing of data	(4.1-4.1:9)
Translation from/to units of temperature	(6.1-3.2; external)

Performance

Implement efficiency improvements in imager as demonstrated in benchmarking document (<http://aips2.nrao.edu/projectoffice/b.ps>). Imaging comparisons will improve to within a factor of 2 of AIPS over a range of image sizes (up to at least 4K x 4K).

Implement efficiency improvements in calibrator as demonstrated in benchmarking document. Calibration comparisons (core calibration, i.e., rf passband, phase and amplitude) will improve to within a factor of 2 for Gildas and AIPS (<100 solution intervals).

Work as required based on ALMA benchmarking tests.

Robustness

All developer's have 25% time allocated for testing/defect resolution. New functionality will have associated assay/unit tests for automated assessment in compliance with AIPS++ standards. Internal testing coordinated through the Project Scientist will take place at the end of each project Stable Snapshot cycle; this predates the ALMA project integrated testing phases.

Infrastructure

Flagging tool integration/design (for Req:4.1-4,4.1-6)

Common Framework Design and Implementation begin 02-Dec-2003. This effort will be predicated on the ACS pipeline development experience. This target will address requirements in the Operational and Interface areas.

ALMA Prototype Pipeline

Completion of Phase B and C