ROADMAP: CASA ISSUES AND THEIR STATUS

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Contents

- Status of the software
- My first few months
- Roadmap: Status of solutions for 23 concerns
  - Bullet points
  - Green (OK), yellow (more work), red (no progress)
- Assignment, development, and closure flowcharts
- New concern: The release process
Open:
- 2009 September-December: ~ 490-550 tickets
- 2010 May 08: 660 tickets (~ +25%)
  - Increase is consistent with ALMA/EVLA CSV and first public release

Resolved/Closed:
- 532 tickets between 2008 May 08 and 2009 May 08
  - 26 blocker, 57 critical
  - ~ 10.2 week\(^{-1}\), ~ 0.71 week\(^{-1}\) developer\(^{-1}\) (underestimates)
- 589 tickets between 2009 May 08 and 2010 May 08 (~ +11%)
  - 54 blocker, 112 critical (still priority inflation?)
  - ~ 11.3 week\(^{-1}\), ~ 0.80 week\(^{-1}\) developer\(^{-1}\) (underestimates)

Conclusion: 2-3 more FTEs will help close the gap
Conclusion: You guys kick ass! You should all be proud!
Status of the Software II.

- 2009 May – 2010 May
  - Many important bug fixes
  - Improved plotms
    - Will be replacing plotxy, plotcal, plotant, etc.
  - Added: gencal
    - Amplitude, phase, single-/multi- band delay, antenna positions
    - More features added later
  - More early testing
  - New build system

- User base is growing slowly
  - Good!
  - A few workshops every year
  - EVLA RSRO users
3C391 EVLA Mosaics

4.6 GHz

7.5 GHz

Courtesy of George Moellenbrock
EVLA G93.3+6.9

L band continuum

Courtesy of Sanjay Bhatnagar
Much of the high-priority functionality is already in CASA, but there is still much to add

Future emphases:
- Ongoing bug fixes (no change)
- Sequential architecture studies and refactoring
  - E.g., viewer
- New features
  - HPC (medium term, ultimately e2e from filling to imaging)
  - $T_{\text{sys}}$-like calibration
  - OTF ALMA mosaicking (short term)
  - 3D visualization and feature detection (medium term)
- Better performance
  - Tall poles are flagging and splitting
- More e2e regression (long) and unit (short) tests
  - ALMA and EVLA test data (run on the local cluster?)
  - Increasing the number of quick unit tests
Learned by doing
Wrote the roadmap document (available on CASA Index)
  - What’s right? What’s wrong? Improvements?

I asked for a few months to reorganize
  - One CSSC member even suggested 6 months
External constraints → I was allowed only one month
I decided that one month was not enough

→ “Walking appendectomy” scenario
→ Change is happening, but it’s slow
1. Roles of group members are not well defined
   - Improvements have been made, we’re working on it

2. Little long-term planning
   - Appointed Kumar as architect (perfect person, but other duties)
     • Offloading duties to others
   - Nick has been asking for design documents
   - Darrell et al. thinking about viewer
   - NAOJ will appoint a PM and/or PS for single dish development

3. Haphazard assigning/prioritizing/scheduling tickets
   - Supervisor is the “gatekeeper” for JIRA tickets
   - Default assignee is supervisor? Good initially, now overwhelming
     • Reverting back to “module bosses”
   - Supervisor has final authority over tickets
4. **Not enough information to resolve JIRA tickets**
   - Nick created a procedural document (CASA Index) → spotty

5. **The JIRA ticket priorities are not well defined**
   - Nick created a JIRA priority document (CASA Index)
   - Adherence pretty good (only a few priorities changed)
   - Still priority inflation?
   - New wrinkle: CSV gets higher priority

6. **Closed JIRA tickets immediately reopened**
   - Not as much recently
   - More developer experience?
7. JIRA ticket lifecycle is not well defined
   - Assignment, Development, and Closure flowcharts
   - First two imperfect but acceptable, third happens soon

8. Many low-priority JIRA tickets ignored
   - We had a bug-fix week
   - Will will have bug- and help- fix days soon

9. Developers do not contribute to priorities
   - Architect will sit in on CSSC meetings
10. Management structure is too flat
   - Appointed Kumar as architect
   - We have informal bosses, is this good enough?
   - Realization: I need a deputy

11. Release dates for CASA and ACS are identical
    - Shifted, to help ACS/CASA respond to each other

12. Reorganization hard while project advances
    - “Walking appendectomy”
    - Outside forces: We deal with them as best we can
13. Vacations too close to release dates
   - A non-issue, we need to have a deeper talent base

14. NRAO scientists have little in-office research time
   - Welcome to CASA (near term)
   - I am also a victim

15. Steve stepped down as PS
   - Juergen took over; like us he’s oversubscribed

16. CASA cookbook looks like a reference manual
   - Juergen is working on this
   - Juergen also works on on-line help, web pages, toolkit
17. **Who makes the “Go” decision for release?**
   - Supervisor and PS (it’s been controversial)
   - Release plan

18. **Regression tests may not cover all use cases**
   - Sandra is test lead
   - Sandra wrote document, added missing regressions
   - Sandra wrote document and set up unit tests

19. **Code is submitted by non-CASA developers (!)**
   - New test case for MeerKAT (document, we have final say, etc.)
20. Large number of aips2 and casa mailing lists
   - Almost all aips2 mailing lists turned off
   - All casa mailing lists regularized
   - MRAO user and developer lists created (little activity)
   - Message boards? Juergen is looking into them

21. Stable builds for experienced users
   - We now create stable builds (faster than releases)

22. When to change supported OSes?
   - Decision early in development cycle

23. Interactions between helpdesk and CASA
   - Discussions, new JIRA tickets → successful, thus far
Assignment & Development Charts

Assignment

Development

These work pretty well ... no changes
Simplified

Part of new release process

Combines:
- Unit tests
- Regression tests
- Developer, active, and test svn branches
- Build system (hidden)

Not yet implemented
- Start after June patch
New Concern: Release Process

- Existing release process was inadequate
  - Delayed releases
  - New code remaining in limbo during feature freezes
  - Too much effort getting releases “out the door”

- Document for new release process
  - svn branches regularized and tied to test systems
    - More unit testing early
  - Stable builds updated ~ monthly
    - Make bug fixes available more quickly
    - Make biannual releases less stressful, freezes shorter
  - Available on CASA Index page or from me
  - Comments welcome
Questions?