

Minutes of Meeting LOFAR Software

Date:	20070724
Next meeting:	20070814 11:00-12:00
	Paviljoen West Room
Present:	
Andre Gunst	Yes
Ronald Nijboer	Yes
Ruud Overeem	Yes
John Romein	Yes
Michael Wise	No

cc: Arthur Coolen, Jurjen Sluman, Pieter Donker, Chris Broekema, Martin Gels, Joris v. Zwieten, Marcel Loose, Adriaan Renting, Max Avruch, Peter Boonstoppel, Michiel v. Haarlem, Jan Reitsma, Ger de Bruyn, Arno Schoenmaker, Hanno Holties, Corina Vogt, Jan Noordam, Joe Masters, Lars Bähren

Remarks previous minutes

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Announcements

- The Meqtrees software is available now via sourceforge.net.
- The IP addresses of the BG/L will be renumbered in a more logical way in the first week of September.
- In the last CEP/WAN meeting was decided (at working level at least) that the RUG should be responsible for the operations of the hardware and Operating Systems (OS) of the CEP clusters.
- At 23 August a discussion with the RUG will take place about the OS to be used in the clusters (the goal is to minimize the amount of OSs used in the system).
- At 14 September a IBM workshop about “Stream S” will take place.
- The next 2 weeks no LOFAR software meeting is planned because of the holidays.

Action item overview

ID	Date submitted	Description	Owner	Planned date	Status
38	20070704	Investigate if the OS of the input nodes can be lined up with the BG/L front node.	John/Chris	20070717	Open
39	20070704	Order new storage nodes. The RUG will be made responsible to arrange the necessary storage nodes.	Andre	20070724	Closed
40	20070710	Define stappen plan for the pulsar mode.	Michael	20070822	Open
41	20070710	Installation of CASA core tools on build environment.	Ruud	20070822	Open
42	20070710	Can the HDF5 format handle data with corrupted blocks in it.	Michael	20070822	Open

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Progress

Stations (André):

Since no extra functionality is needed for Step 2, this step mainly comprises enhancing robustness. Current status:

Achieved since last meeting:

- The TBB hardware is now fully operational. Two boards are shipped to the field next Wednesday.
- Last weekend a successful observation was done including new RSP boards in CS001. No difference was found compared with the old RSP boards. Next Wednesday all RSP boards in CS010 will be replaced with the new ones.
- The spectral inversion of the even Nyquist zones work. This should be tested in a HBA observation.

Problems / current activities:

- The manufacturer of the switches admitted (between mouth and lips) that the switches are not designed for high humidity levels when the switches are supplied. Alternative switches are searched for and after that tested. Currently three alternatives are found and will be tested in the climate chamber. As soon a good alternative is found, all 5000 switches in the field will be replaced.
- Step 3: The control of the HBA beamforming and validation is ongoing.

Next actions:

- Step 2: Solve problems.

OLAP (John):

Activities for Step 2 comprise integration with MAC (ongoing) and adding the ability to measure with higher bandwidth (done).

Achieved since last meeting:

- The integration of OLAP and MAC works currently for the whole pipeline for one subband.
- Observations are done with the input cluster functionality integrated in the BG/L.

Problems / current activities:

- Step 2: Integration MAC / OLAP is continuing (Martin). The remaining task is to increase the amount of subbands and to solve problems of non tolerance of the input buffer (if it starts too early or too late, the observation is failed).
- John is busy to integrate the input section functionality on BG/L. The remaining tasks is to get the kernel 100% stable and test for scalability. To do so it would help that the 12 microstations of CS010 have the same bandwidth as the current 4 microstations of CS010.
- Chris is clarifying why the storage section is currently working slow. This was done to get the specifications clear for the new storage nodes.

- Currently a lot of things in OLAP needs to be a multiple of other things. This should be made more flexible.
- Step 3: When one station stops sending data, OLAP gets confused (Chris).
- Step 4: John looked in the solution for multiple beams and multiple parallel observations. Enabling this is major change.
- Step 5: Peter is busy with making the 2nd core available in the ZOID communication software, so that the input bandwidth can be increased even more.
- Post CS1: In a plot of RMS against frequency, one of the subbands shows a periodic variation. It is unknown what causes this, and this has to be investigated / solved.
- Post CS1: Stopping an observation sometimes had a corrupt Measurement Set as a result. A workaround has been implemented, but a structural solution has to be realized. This has to be solved in the architecture of CEP-frame. If the current workaround is stable, this issue can be solved after Step 5 (=CS1).
- Post CS1: The CEPFrame framework is very developer unfriendly, and has some technical limitations. A work item to refactor CEPFrame will be added to the Work Breakdown as a mid term activity.

Next actions:

- Step 2: Solve problems that are related to Step 2.

Offline pipeline (Ronald):

Activities for Step 2 are finished.

Achieved since last meeting:

- Joris has cleaned up the the MS interface, to speed up BBS. More optimizations will be done.
- The default data products are defined in the document (under progress): LOFAR Processing & Off-line cluster written by Ronald Nijboer.
- Step 2 is finished.

Problems / current activities:

- Data reduction tools are needed and gets a higher priority driven by the needs of BBS. Adriaan has finished working on combining multiple Measurement Sets and reducing the data of the Measurement Sets by integration. The MSs seems ok, but the AIPS++ table browser cannot deal with them. Sarod was able to deliver this functionality with Glish. Ger v. D. will be asked to port this to C++.

Next actions:

- Continue with step 3 activities.

SAS + MAC + SHM (Ruud):

Activities for Step 2 are ongoing. Integration with OLAP and adding functionality to SAS + MAC + Navigator to control OLAP, are the main activities.

Achieved since last meeting:

- The spectral inversion of the even Nyquist zones work.
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Problems / current activities:

- Step 2: Integration with OLAP / ACC is ongoing (Ruud).
- Ruud is busy with the second layer (out of three) for the property agent alternative. The test programs for this layer needs to be written.
- Arthur progresses quickly with the Navigator framework structure. He is busy with defining which (series of) screens and actions should be assigned to the datapoints.

Next actions:

- Solve the problems related with Step 3.

User Software (Michael):

Achieved since last meeting:

- Ronald remarks that the BBS visualization is necessary on the short term.
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Problems / current activities:

- Joe has been busy to detail out, how the data access layer can interface with the MS IO of the CASA core software.
- Together with Ben and Jason a first specification has been made of the tied array beamformer output format in such a way that a convenient connection can be made with the pulsar software.
- Lars is busy with an imager for the cosmic rays pipeline.
- Post CS1: Joe Masters is busy with handling the streaming data coming out of the correlator and writing this into HDF5 format or Measurement Sets. The first version is done and needs to be tested.

Next actions:

- Solve the problems that are related with the Step 3 activities.

Software integration

Achieved since last meeting:

- A meeting with the EOR and survey KSP has been taken place.

Problems / current activities:

- Meetings with the cosmic ray is planned at 10 August.
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Next actions:

- Step 2+: A test program will be initiated to verify the functioning of the LOFAR software in a more structured way. In OLAP it is possible to store the raw station data and feed this into the pipeline later on. This makes it possible to define a

standard data set, which can be applied to the pipeline as soon as major software changes have been taken place.

Decisions

ID	Date submitted	Decision
02	20061220	Every Step will start with a Kick-off meeting, in which the complete software team participates.
03	20061220	The project team starts immediately with the preparations of the next CDR in order to preserve progress of the CS1 realization
04	20070116	This meeting will take place every week on Tuesday 11:00. The existing software team meeting with all developers will stop to exist.
05	20070130	Step 1 will be changed to 16 subbands instead of 32 subbands.
06	20070130	Step 2 will contain a multiple node BBS. 6 μ Stations/Station will be postponed. Instead of this, 32 subbands measurements will be realized.
07	20070206	Step 1 will support 160 MHz observations. The other steps will support 200 MHz as well.
08	20070424	Step 2 will support 16 subbands @ 200MHz and 24 MHz at 160 MHz
09	20070424	During the rest of step two, OLAP will only support observations during the weekend.
10	20070522	The number of subbands per Measurement Set is set to 6 or 8 default.
11	20070522	Scheduler activities will be preferably activated in Q4 2007.
12	20070522	Procure, three Local Control Units to accommodate 12 microstations in CS010 in a quick way.
13	20070529	Integrate version numbers in all software.
14	20070529	Distinguish the software between a production version and an engineering version (partly now already the case).
15	20070605	All developed software under CVS will be transferred to Subversion. The main reason for this is that Subversion supports the integration of version numbers in the executables. In this way you can always retrieve which software is used for a certain build. First the impact of the transfer will be investigated by Marcel.
16	20070619	Marcel Loose will be the librarian of the LOFAR software. The available time for this will be shared with his BBS work.
17	20070710	The known pulsar survey mode will be the next mode to support (not in its full extent but partly on-line and off-line).
18	20070710	The temporarily off-line part of the known pulsar mode pipeline will not be under control of SAS/MAC. This will be put under control of SAS/MAC as soon as that software is available in the on-line part of the system.

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Table round

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