

Minutes of Meeting LOFAR Software

Date:	2008-02-13
Next meeting:	2008-02-20 9:15-10:15
	Paviljoen West room
Present:	
Andre Gunst	Yes
Ronald Nijboer	Yes
Ruud Overeem	No
John Romein	Yes
Michael Wise	Yes

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

Remarks previous minutes

- Minor textual comments

Announcements

- Michael gave a talk about LOFAR at ASPRE in Paris (workshop about GRID computing, networking, astro particle science, ...)
- The magnetism KSP hired a developer (from 1 March 2008). His name is Sven Duscha. He will come to Dwingeloo to get acquainted with LOFAR.
- Input cluster has been removed successfully. The alternative is not working yet. Currently the database update of BG/L causes troubles.
- Kamil Iskra (Argon National Lab in Chicago) presents the ZOID paper at PPOPP in Salt Lake City.
- RSP3 boards are installed on CS016.
- No RSP3 boards are available to install at CS008 (has to wait for the production phase).
- Selection process of station hardware finished. A final advisory report will be written for LOFAR management.

Action item overview

ID	Date submitted	Description	Owner	Planned date	Status
46	20080109	Testing SAS/MAC on CS001T with the new OLAP software. SAS part is producing a parameter set which can be used by OLAP. Almost done. The connection to Groningen was down, which needs to be solved.	Ruud	20080116	Ongoing
48	20080116	Plan discussion about HDF5	Michael	20080214	Open
49	20080116	Simultaneous data storage of TBB and in OLAP to validate inverse poly phase filter bank of Kalpana. Dataformat should be changed.	John/Andre	20080204	Ongoing
51	20080206	Ruud made a meta data chart. John	John, Ronald	20080220	Open

		should check the inputs and the outputs of the online subsystem and Ronald of the offline subsystem.			
52	200080206	What functionalities are required for the 18 stations (expected end 2008). This will be discussed in a DMT meeting at 20 Febr. 2008.	Andre	20080220	Open
53	200080206	Estimation of work if CS1 is scaled up to 18 stations.	John, Ruud, Ronald	20080227	Open

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Progress

Stations (André):

Achieved since last meeting:

- For the Mickey Mouse core stations a board is necessary to re-route the ring signals in the station. Also a firmware modification is required for this. This board including the firmware changes is tested successfully in the lab.
- TBB will be prepared for maximal 16 Gbyte per module. Upgrading the modules require only firmware changes.

Problems / current activities:

- Long distance delay tracking is not tested again
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Next actions:

- Step 4

OLAP (John):

Achieved since last meeting:

- Multi-beaming on BG/L works. Now Martin is busy with the storage writer. Multi-beaming will be implemented in such a way that one beam and one subband is written in the MS.
- When the L1 cache for the message buffer of the IO node is not used than the ZOID software is stable. The L1 cache is not necessary for our application, so we turn it off for the message buffer.

Problems / current activities:

- Chris is busy with input cluster removal.
- John was busy writing raw data after the buffer in the BG/L solution, which is necessary for the Kalpana experiment and for pulsar observations. This includes course delay tracking.

- John discovered that one link of CS010 was degrading. Operations have not solved this yet.
- Robustness for failing disks is not included yet.

Next actions:

- Step 4

Offline pipeline (Ronald):

Achieved since last meeting:

- Joris tested the communication necessary for the Global Solver.
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Problems / current activities:

- Ger is writing a converter to convert the LOFAR parset format (distributed by SAS/MAC) and CONRAD parset.
- Ger is rebuilding the newest version of the distributed imager from a new repository (because CONRAD collaboration ceased).
- The distributed imager has problems with 64 bit machines (low priority).
- Open tasks which are not assigned yet due to lack of people:
 - documentation of the imager,
 - profiling of the imager,
 - speed up of the BBS parameter database (question: is this the bottle neck?),
 - global sky model,
 - station beam modeling and validation (LBA and HBA),
 - flagger
- Joris is working on the global solver and making progress.
- Maaijke start to look in the BBS code, to know how to incorporate the ionospheric model.
- Ger and Maaijke have worked on the visualization of the calibration solutions.
- Pandey is completing the validation and testing of the pipeline including UV-fitting.
- Coding for BBI is essentially done. Related Step 4 activities will focus on testing and validation. We need some documentation as well as an overall testing and validation plan.

Next actions:

- Step 4.

SAS + MAC + SHM (Ruud):

Achieved since last meeting:

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Problems / current activities:

- Pieter is busy to work on the cable length compensation, which must be set from the LCU. Furthermore he is working on the temperature control with a low priority.
- Max is busy to make the web application of SHM with subband statistics, cross let statistics, beamlet statistics and diagnosis statistics.
- Arthur is working on Navigator 2.0 screens, which looks very usefull. This Navigator version gives much more insights in the relation between hardware, observation and the processes running.
- Ruud made changes in SAS, PVSS and MAC for supporting multi-beaming. Databases are updated and ready to be tested.
- Ruud will check with Pandey the DP3 interface.

Next actions:

- Step 4

User Software (Michael):

Achieved since last meeting:

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Problems / current activities:

- Webserver machine is going down frequently. A newer machine will be setup (LOFAR26).
- Next step for Lars is to work on the near field imager (skymapper). Lars wants to test it with LOFAR data.
- Joe will make the hooks in DAL to include metadata (some of the metadata should end up in the header of the dataproducts).
- Joe is checking how much work is required to connect DAL to CASA core for using the HDF5 data format
- Next actions are: to update the document about the beamformer product format and do profiling on the data access layer.

Next actions:

- Review activities for Step 4.

Software integration

Achieved since last meeting:

- The RUP tool is operational again.
- Version control numbering is implemented in the RUP tool. The software builds and a version can be included. Except for the BG/L software.

- First draft of the software plan is sent out to the KSPs last week. Comments were received and will be included.

Problems / current activities:

- Marcel is busy with streamlining the build environment
- Compile a list of anticipated data products and calibration or metadata files associated with each of the pipelines.
- LOFAR development software needs to be build in Kubuntu (Michael has volunteered)

Next actions:

- Define the length of Step 4.
- 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.
19	20070814	Joe Masters makes the routine to read in the TBB data.
20	20071002	Fault tolerance of the system (mainly OLAP) is put at the top of the priority list after closing the SAS-MAC and CEP integration.
21	20071123	Kubuntu 7.10 desktop 64 bit OS is chosen for all machines except the BG/L and MAC/SAS machines
22	20071123	Station calibration work is smeared out over Step 4 and Step 5.
23	20071123	Global bandpass shape is moved to Step 5 because of its low priority.
24	20071211	Multiple beams per observation will be implemented instead of multiple observations (this is consistent with the plan).
25	20071211	Step 3 will be closed next Thursday. Any open items will be finished in Step 4.
26	20080130	Multiple beams are defined as multiple directions with the same set of antennas. Hence, only the angle, subbands and beamlets can be modified per beam.
27	20080206	Step 4 and Step 5 for MAC/SAS will be changed. The control of the offline pipeline will be postponed because the offline subsystems are not fixed yet. Currently the definition and design of the metadata flows will be set as goal for Step 4 and the implementation of the metadata flow will be the end goal of Step 5. Hence, after Step 5 (part of) the metadata is included in the Measurement Set.
28	20080213	Currently a single subband and single beam is stored in a Measurement Set. As soon as we are ready for mosaicing this probably should be changed in the future.

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Table round

- Input cluster will be offline in about 2 weeks. The idea is to install Kubuntu on these machines and use them as offline machines. The old offline machines remain in their current status (32 bit). They will and are already dying slowly. The specifications of the input nodes are: 2 single core 64 bit processors running @ ~2GHz (AMD opterons), 400 Gbyte disks, internal memory: 4 Gbyte. This memory is shared between the 2 processors.
- This week the SAS/MAC team is on a holiday:
 - Arthur: 13 – 21 Febr,
 - Pieter 11-15 Febr,
 - Ruud 11-22 Febr (available for problems)