

Minutes of Meeting LOFAR Software

Date:	2009-01-14
Next meeting:	2009-01-21 9:15-10:15
	Multimedia room
Present:	
Andre Gunst	Yes
Ronald Nijboer	Yes
Ruud Overeem	Yes
John Romein	Yes
Michael Wise	No

cc: Arnold Meijster, Rob van Nieuwpoort, Arthur Coolen, Jurjen Sluman, Pieter Donker, Chris Broekema, Martin Gels, Joris v. Zwieten, Marcel Loose, Adriaan Renting, Ger van Diepen, Max Avruch, Michiel v. Haarlem, Jan Reitsma, Ger de Bruyn, Arno Schoenmaker, Hanno Holties, Corina Vogt, Jan Noordam, Joe Masters, Lars Bühren, Dion Kant, Johan Hamaker, Maaijke Mevius, Sven Duscha, Jan-David Mol.

Remarks previous minutes

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Announcements

- All 46 LCUs are in and currently installed by Teun.
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Action item overview

ID	Date submitted	Description	Owner	Planned date	Status
77					

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Progress

Stations (André):

Achieved since last meeting:

- Arie is currently busy to support 4 GByte TBB memory in the firmware. The memory controller, which is an IP core of Xilinx, does not work properly yet. Arie is investigating a workaround for this.

Problems / current activities:

- Eric is busy solving the cross correlation problems.
- The HBA calibration waits for the first HBA field. This has to be postponed to the next step.
- The superterp infrastructure ordering waits on the cable lengths required. This information will be delivered by Arie H.

- Dips: Michiel Brentjens can currently predict the dips and the cause appears to be in the BeamServer software. The problem has not been solved yet.

Next actions:

- Continue with LOFAR20

OLAP (John):

Achieved since last meeting:

- One rack of BG/L is connected with long cables.

Problems / current activities:

- The work to get feedback from correlator to MAC/SAS is ongoing.
- Kernels for IO node optimizations are still not stable. This has the priority over the other activities.
- Jan-David is busy implementing the TAB functionality for the pulsar mode.

Next actions:

- Continue with LOFAR20

Offline pipeline (Ronald):

Achieved since last meeting:

- Define A-team abstraction is written in the strategy document. Also the clock phase correction is described there, which does not work in all cases. For these exceptional cases a strategy has to be defined.
- Adriaan has written a document about flagging on baseline length and station number. This is currently under review. After that this will be implemented.
- BBS global solver is partly tested (solved over multiple subbands). Tests for actual observations must be done.

Problems / current activities:

- Maaijke is busy with BBS ionospheric SPAM tests.
- Joris is working on solution based flagging. He is implementing the method of Sarod for this.
- Imager regression tests will be defined by Ger and Malte.
- There is a worry if the control frameworks scale up. There is the Blackboard control, Master worker control, iPython control. John Swinbank will investigate the pipeline framework.

Next actions:

- Continue with LOFAR20

SAS + MAC + SHM (Ruud):

Achieved since last meeting:

- Arthur has modified the Navigator such that it can handle multiple LBA fields (since we connect the LBL and LBH inputs).
- Currently the attenuation and delay can be set. Only the RSPDriver should be modified for this.
- Pieter was busy testing a rack with TBBs since some issues appeared during subrack testing.

Problems / current activities:

- Metadata flow work is ongoing. Arno is busy with a mechanism to distribute the static meta data from SAS to the stations.

Next actions:

- Continue with LOFAR20

User Software (Michael):

Achieved since last meeting:

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Problems / current activities:

- Casey will design a set of scientific validation tests for the CIMAGER. Casey is busy to automate the first five tests.
- Lars is continuing to work on the CR near-field imager.
- Alexander is busy with the mosaicing tool.
- Sven is working the RM synthesis prototype

Next actions:

- Continue with LOFAR20

Software integration

Achieved since last meeting:

- We will start to merge to Cmake now.

Problems / current activities:

- Compile a list of anticipated data products and calibration or metadata files associated with each of the pipelines. It is a task on the task list.

Next actions:

- 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.
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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.
29	20080220	For storing the raw station beams the sanitizing operations like input buffer will be included in the online part. For this OLAP has to give operational support or instructions to the observers how to start up manually such observations. Since, this is an between solution this will not be automated via SAS/MAC.
30	20080227	Weekly build environment will be updated and automated.
31	20080227	After Step 5 the software documentation will be updated and obsolete packages will be removed.
32	20080423	Basically two Low Band modes will be supported initially: a LBL and LBH mode. The connection between antennas and RCUs have to be chosen such that those to modes make sense.
33	20080528	The position of all individual dipoles will be made available centrally in the database.
34	20080603	The data format of the positions will be delivered in ETRS coordinates by the roll out team. However, the data format of the positions will be stored in ITRF format in the LOFAR databases. Hence, all software and configuration files dealing with coordinates must be made compatible with the ITRF dataformat. Hans van de Marel is responsible to convert the ETRS coordinates to ITRF coordinates for the LOFAR system.
35	20080903	Kubuntu will be installed on LOFAR18, which will serve as a software development machine.
36	20081022	Station cabinet will be heated (if necessary) to 10 degrees Celsius (for the LCU).
37	20081029	We will transfer the build environment to cmake.
38	20081029	Step 1 will be closed at 11 November.
39	20081112	Bugs found in the field have the highest priority to solve. Bugs which take more than a week to solve will be added to the task list and prioritized in the software meeting. During bug solving tests should be written up, which proves the correct behavior. These tests will result in a procedure to check the functionality when new soft/firm ware is loaded.
40	20081126	The 4 bit mode will be supported after MS^3.
41	20081203	We will modify the build environment to cmake from now on.

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Table round

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