

Minutes of Meeting LOFAR Software

Date:	2008-09-17
Next meeting:	2008-09-10 9:15-10:15
	Multimedia room
Present:	
Andre Gunst	Yes
Ronald Nijboer	Yes
Ruud Overeem	Yes
John Romein	No
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 Bähren, Dion Kant, Johan Hamaker, Maaijke Mevius

Remarks previous minutes

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Announcements

- The CEP tender is closed and preferred suppliers are informed.

Action item overview

ID	Date submitted	Description	Owner	Planned date	Status
68	20080723	Test whether TBB dumps are actually possible from the station hardware (not just the test hardware).	Michael	20080919	Open
69	20080813	Draft set of regression tests for CIMAGER (with input from Casey)	Michael	20080919	Open
70	20080820	Contact Tim Cornell about CIMAGER testdata.	Ronald	20080920	Open
71	20080820	Organise data format meeting. Lars, Michael and Ger had a pre-meeting and agreed on a couple of tests to get a feel for performance issues. Meeting target date is early October. Lars and Ger are doing the performance tests.	Michael	200808027	Open
72	20080917	Use rs002 as weekly build machine for the MAC/SAS software.	Ruud	20080924	Open

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Progress

Stations (André):

Achieved since last meeting:

- Eric is planning to activate a watch dog timer in the FPGAs. If the LCU does not communicate with the board any more the watch dog will reset the board and start

up in the default mode. In this mode no data will be sent to CEP. The watch dog time will be set to about 2 – 5 minutes.

Problems / current activities:

- 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.
- Long distance delay tracking observations have been done. James Anderson will look for fringes.

Next actions:

- Continu with LOFAR20

OLAP (John):

Achieved since last meeting:

- Martin cleaned up the Python scripts, added checks (e.g. if the ParSet file is correct) and enabled the support of expanded arrays. Furthermore he added a script to calculate the SubbandPSet and StoragePSet automatically. This supports the operators better.
- Bandpass correction document is updated by John.

Problems / current activities:

- Asynchronous transpose is implemented, but not tested yet.
- Chris is busy to improve the memory speed of the IO nodes in collaboration with Argonne. It works on the IO node, but currently Chris has no access to the compute nodes anymore.
- TAB implementation for superstation is under test.
- Robustness for failing disks is not included yet (Arnold Meijsters).

Next actions:

- Continu with LOFAR20

Offline pipeline (Ronald):

Achieved since last meeting:

- Marcel did a run of the distributed imager via a script on 10 nodes with 36 subbands of a 24 hour observation with full resolution. This took 1.5 hour to process, which is a factor of 10 times faster then before.
- Casey performed a second round of imager tests. The results are fed back to Ger.

Problems / current activities:

- Joris is busy to adapt BBS for the new parameter database.

- Ger is busy with implementing the parameter database.
- Online bandpass correction verification by Pandey waits for station data.
- Adriaan is busy to implement time compression in DP³.
- Pandey's flagger in DP³ is not working properly yet.
- Pandey will commission the Global Solver. This week simulated data will be used for this.
- Pandey will test the HBA dipole beam model in BBS.

Next actions:

- Continu with LOFAR20

SAS + MAC + SHM (Ruud):

Achieved since last meeting:

- Ruud have been busy to transfer the development machine to a 64 bit machine. The problem is that part of the tree needs to be build with 32 bit and some with 64 bit. Ruud asked ETM to deliver libraries which are compiled with a more recent compiler. Back up scenario is to use 32 bit in the field for LCUs. Teun has installed already a 32 bit machine and is building the complete LOFAR tree on 32 bit.

Problems / current activities:

- Pieter has been working on the temperature control.
- Ruud is busy to export the gains of the CalServer to a file.
- Arthur has done performance test with the test system. This will be done on the production system as well.
- Red Hat licenses are not bought yet (waiting for ETM).
- Issue: 7 seconds per subband. Optimization is already made. Three seconds can be gained with this.
- Metadata flow work is ongoing. Arno is busy with a mechanism to distribute the static meta data from SAS to the stations.
- Extra status registers which are implemented in the FPGAs are not driven yet by the LCU. This will be moved to Step 2.

Next actions:

- Continu 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.
- Near field imager work is ongoing.
- Members of the Magnetism KSP are exploring using the VisIVO package to visualize RM synthesis cubes.
- Alexander started with a radio image mosaicing script for casacore.

Next actions:

- Continu with LOFAR20

Holidays

John: From ~26 August 3 weeks and structural one day off from ~26 August onwards.

Ronald: 25 August to 12 September

Software integration

Achieved since last meeting:

- Marcel made again a weekly build. However a main part of the software was not successfully build. One of the reason that the MAC/SAS software did not build was because PVSS is not installed on those particular machines. Ruud will communicate to Marcel to include for the MAC/SAS software the rs002 machine.
- LOFAR development machine is currently the DOP143 where multiple virtual machines are installed.
- Martin, Marcel and Lars are busy to compile LOFAR code with cmake. Some issues are not solved yet. A meeting with Martin, Lars, Marcel and Ger will be held to summarize the results.

Problems / current activities:

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

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.

Decisions

ID	Date submitted	Decision
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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.

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Table round

- Ruud: What is the current schedule of the station roll out? Andre: the first LBA station is expected October 2008 and the first HBA station December 2008.