

## Minutes of Meeting LOFAR Software

<b>Date:</b>	2008-10-22
<b>Next meeting:</b>	2008-10-29 9:15-10:15
	Multimedia room
<b>Present:</b>	
Andre Gunst	Yes
Ronald Nijboer	No
Ruud Overeem	Yes
John Romein	Yes
Michael Wise	Yes

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**

- Evaluation meetings have been held with most of the bidders for the CEP tender.
- The next phase is to define exactly what we need. This will be send to the preferred suppliers at the end of the week.
- Station cabinet which houses the LCU will be heated till 10 degrees (in the LCU specification).
- Michael gave a presentation for the NOVA ISC last Friday.

### **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	20081020	Open
69	20080813	Draft set of regression tests for CIMAGER (with input from Casey).	Michael	20081031	Open
70	20080820	Contact Tim Cornell about CIMAGER testdata.	Ronald	20081020	Open

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### **Progress**

#### **Stations (André):**

Achieved since last meeting:

- Arie is busy implementing tests for the TBB via Python for the production company.

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.
- Reading back the status of the HBA tiles fails often.

Next actions:

- Continue with LOFAR20
- Eric will make a Python script to dig in the HBA read back bug.

## **OLAP (John):**

Achieved since last meeting:

- Martin is testing the integration with MAC/SAS.
- Asynchronous transpose is tested.

Problems / current activities:

- Chris is still busy with the interrupts.
- Robustness for failing disks is not included yet.

Next actions:

- Continue with LOFAR20

## **Offline pipeline (Ronald):**

Achieved since last meeting:

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Problems / current activities:

- Joris is busy to adapt BBS for the new parameter database.
- Ger is busy with implementing the parameter database.
- Joris is looking at the solution based flagging.
- Online bandpass correction verification by Pandey waits for station data. An observation of 48 hours was defined.
- Pandey's flagger in DP<sup>3</sup> is not working properly yet.
- Pandey will commission the Global Solver in the next phase.

Next actions:

- Continue with LOFAR20

## **SAS + MAC + SHM (Ruud):**

Achieved since last meeting:

- Arthur finished the performance tests. Ruud documented the results.
- Station calibration optimization will be probably done via a Matlab C++ compiler.
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Problems / current activities:

- 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:

- Continue with LOFAR20

## **User Software (Michael):**

Achieved since last meeting:

- Pipeline framework definition is done.

Problems / current activities:

- Casey will design a set of scientific validation tests for the CIMAGER.
- Lars is continuing to work on the CR near-field imager.
- Members of the Magnetism KSP are exploring using the VisIVO package to visualize RM synthesis cubes.

Next actions:

- Continue with LOFAR20

## ***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 built

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.
- Merge the repositories of the USG and LOFAR development to one.

## Decisions

ID	Date submitted	Decision
02	20061220	Every Step will start with a Kick-off meeting, in which the complete software team participates.
<del>03</del>	<del>20061220</del>	<del>The project team starts immediately with the preparations of the next CDR in order to preserve progress of the CS1 realization</del>
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 $\mu$ 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).

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## **Table round**

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