Minutes of Meeting LOFAR Software

Date:	2009-02-18
Next meeting:	2009-03-04 9:15-10:15
	Multimedia room
Present:	
Andre Gunst	Yes
Ronald Nijboer	Yes
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, Sven Duscha, Jan-David Mol.

Remarks previous minutes

- Pyrep is called Pyrap.

Announcements

- There is a pulsar busy week scheduled at 2-6 March: this requires the availability of Jan-David and probably Joe Masters.
- There will be a technical status meeting at 18-19 May. All representatives of the KSPs are there. The goal is to present there which modes are available and what the system is capable of.
- LOFAR data processing school was a great success.
- **Currently the BG/P is being re-cabled.**

Action item overview

ID	Date submitted	Description	Owner	Planned date	Status
79	20090121	Setup meeting to discuss the next steps concerning the pulsar pipeline. A meeting was held.. Currently we will optimize the tied-array beamformer and implement the data writer on the BG/P. Also a variable polyphase filter bank will be implemented.	Andre	20090128	Closed

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Progress

Stations (André):

Achieved since last meeting:

- The 4 Gbyte memory modules are not in yet. So, there have been done no more testing so far.
- The cables for the superterp clock infrastructure have been ordered and are arrived.

Problems / current activities:

- The HBA calibration waits for the first HBA field. This has to be postponed to the next step.
- 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:

- Currently it seems that the Linux kernels are stable. The correlator has run at a smaller partition 1.5 week without interruption. In total there where 4 bugs solved.
- Rob implemented a variable polyphase filter bank. This is not been tested for a real observation. This processing block is relevant for the pulsar pipeline.
- John is optimizing the tied-array beamformer mode. This is written in assembly which is 10 times more efficient. Furthermore, we can go to 16 bit integer which doubles the number of tied-array beams.
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Problems / current activities:

- Martin is busy with Cmake and the integration with MAC.

Next actions:

- Continue with LOFAR20

Offline pipeline (Ronald):

Achieved since last meeting:

- Most people were busy with the LOFAR data processing school.
- Adriaan finished implementing flagging on baseline length and station number.
- Ronald updated the Wiki page of the offline processing. There BBS and the imager are documented and explained.
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Problems / current activities:

- Evert Rol will work on the regression test suite for the imager.
- Ronald is busy with a document about beam modeling.

Next actions:

- Continue with LOFAR20

SAS + MAC + SHM (Ruud):

Achieved since last meeting:

- Arthur and Ruud had traced down a bug in the PVSS software.
- Pieter has finalized the connection drawings for the temperature controller.

Problems / current activities:

- There are some problems with the HBA tile here in Dwingeloo. However the LCU is disconnected to it. Ruud will dive into the problems as soon as a LCU is connected again. Menno does some additional tests first.

Next actions:

- Continue with LOFAR20

User Software (Michael):

Achieved since last meeting:

- Sven and Lars have solved a few build issues in the library. The first version of the RM synthesis tool will slip to Step 3.
- Lars tracked down a time stamp problem and solved build issues. Furthermore he assisted Martin and Marcel in Cmake.
- Most people where busy with the LOFAR data processing school.
- GSM database implementation will be installed next week.
- Michael defined a first version of the imager pipeline data product.

Problems / current activities:

- Lars is continuing to work on the CR near-field imager and is solving the last bugs.

Next actions:

- Continue with LOFAR20

Software integration

Achieved since last meeting:

- Marcel, Martin and Lars are busy merging to Cmake.

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 µStations/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.
42	20090129	Transient source modeling tool under Python will be used for source modeling.
43	20090129	Delay deadline of Step 2 to 26 February 2009.
44	20090209	Remote Stations including the ring splitter near the core will be renamed to CS stations.

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Closing Step 2

Wednesday at 4 March 2009 Step 2 will be closed.

Table round

- Ronald: After the LOFAR data processing school people have asked for the BBS software. People can login to the offline cluster to use BBS. There is the most up to date version and can BBS be commissioned. Marcel: open source
- Michael: Is on a holiday for one month.
- Simulations. Nee an antenna table.
- John: Who is responsible for the latest software versions on the offline cluster. Andre: Teun.
- Ruud: Did we managed to get a lot of observations before re-wiring the BG/P. There have been done a number of observations: the mosaicing observations, some pulsar observations and an observation together with Effelsberg.