Minutes of Meeting LOFAR Software

Date:	2009-05-20
Next meeting:	2009-05-6 9:15-10:15
	Multimedia room
Present:	
Andre Gunst	Yes
Ronald Nijboer	Yes
Ruud Overeem	No
John Romein	No
Michael Wise	Yes

cc: Arnold Meijster, Rob van Nieuwpoort, Arthur Coolen, Jurjen Sluman, Pieter Donker, Chris Broekema, Joris v. Zwieten, Marcel Loose, Adriaan Renting, Ger van Diepen, Michiel v. Haarlem, Jan Reitsma, Ger de Bruyn, Arno Schoenmaker, Hanno Holties, Corina Vogt, Jan Noordam, Joe Masters, Lars Bähren, Dion Kant, Johan Hamaker, Sven Duscha, Jan-David Mol, Teun Grit, Alwin de Jong, Frank Breitling.

Remarks previous minutes

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Announcements

- This week a LOFAR technical status meeting was held for users.
- Today (part of) the hardware of the offline and storage cluster arrives in Groningen. The installation is done next week.
- Effelsberg is still not connected.
- The WAN team is busy to connect the station to Groningen with CWDM technology.
- In CS302 almost all hardware problems were due to connection errors and they have been solved.
- In RS307 and RS503 all LBAs are installed and the cabinets are placed as well. They will be connected soon.
- Michael will chair this meeting in case Andre goes for a holiday.
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Action item overview

ID	Date submitted	Description	Owner	Planned date	Status
83	20090520	Organise small meeting about the use of bugzilla or an alternative for the commissioning phase.	Andre	20090701	Open

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Progress

Stations (André):

Achieved since last meeting:

- There was a fringe detected between two RSP0 boards. The other boards did not show a fringe. This is currently investigated by Andre.
- Stefan is busy with the LBA calibration at CS302 and to figure out the Aeff/Tsys.
- Menno wrote a first version of the CS302 acceptance results.

Problems / current activities:

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Next actions:

- Continue with LOFAR20

OLAP (John):

Achieved since last meeting:

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Problems / current activities:

- There were some issues on cross compilation (building the software for different target hardware than on the system you are actually building on). The tools currently check automatically if boot libraries are available or not and decide to use it. Sometimes this is not desirable and causes problems. Hence a way of manually overriding this mode is necessary. Current there is a workaround.

Next actions:

- Continue with LOFAR20

Offline pipeline (Ronald):

Achieved since last meeting:

- Wednesday a discussion was held about the ionosphere. People of the UK will be involved in it as well. Mamta Pandey will take over the tests of the BBS ionosphere. She also takes part in the data quality checking. Bas van der Tol started May 1st in Leiden.
- Joris made a first implementation of the clock phase correction. The first implementation is in Python. This already showed that the correction should be done in another way.
- The results of the improved global sky model will be ingested into the database.
- Polarisation imaging is not in the ASKAP imager but in the CASA imager. Both imagers are installed in Groningen. Both will be compared as well. The CASA imager will be checked by Evert and Fabian.
- Also the CImager is almost ready to image N channels in M channels. This functionality is already incorporated in the CASA imager.
- In the standard imaging framework the MWImager needs to be integrated. This is basically independent of the imager itself.

- The beam team is meeting today to talk about beam modeling.

Problems / current activities:
- Global bandpass determination needs a new observation. This can be done only when the self generated RFI at CS010 is gone. New stations
- Joris is busy with solution based flagging.
- John Swinbank is integrating the standard imaging pipeline. He is integrating that with i-Python.
- Evert Rol will work on the regression test suite for the imager. He is currently setting up a test framework and uses BBS as prediction. This will ultimately result in an end to end test loop.
- Ronald is busy with a document about beam modeling. Done so far. Now it waits for real data.

Next actions:
- Continue with LOFAR20

SAS + MAC + SHM (Ruud):

Achieved since last meeting:
- Pieter has been working on the installation of the environment controllers in the station and the test scripts to test these. Furthermore nowadays also the 48V power supply can be remotely switched on and off which is very convenient.
- Pieter was been busy as well with fixing TBB bugs.

Problems / current activities:
- Both the BF data writer and TBB data writer are not ready for integration into MAC/SAS in this Step.
- There is now a beamserver which takes ITRF antenna coordinates. A 6 hour observation is done. When it is correct, it needs to be optimized. It waits for checking of Michiel Brentjens.
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Next actions:
- Continue with LOFAR20

User Software (Michael):

Achieved since last meeting:
- Collecting the distributed imager to a cube waits for the standard imaging pipeline.
- A first “light weight” draft of the imager test suite have bee made by Evert.
- Progress has been made on the pulsar data product definition, but not on the cosmic ray products.

- Pulsar pipeline integration will be done by Ken and Anastasia. This takes more time than expected.
- CR post processing pipeline integration will not be done during this step.
- A basic prototype of the Visit plugin works. However, some details have to be filled in.
- A definition was made for the trigger packets by John Swinbank. Basically there is an RSS feed which passes trigger messages from different telescopes around the world.
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Problems / current activities:

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Next actions:

- Continue with LOFAR20

Software integration

Achieved since last meeting:

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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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Holidays

- Ruud is off in May for 5 weeks
- André is off in June for 4 weeks
- Ronald: 26 August – 14 September
- John: 17 May – 22 May, …, and 12 July – 18 July
- Michael: 1 June – 5 June

Table round

- For the commissioning a kind of Bugzilla or discussion forum should be used to track down and document bugs and bugfixes. Probably bugzilla can be used as well. However we need to check if this is appropriate for the commissioning phase and whom can log into this system.
- Closing Step 3: If we want to include BBS in the standard imaging pipeline it is expected that we need another month. Also for the pulsar pipeline more time is required. We re-focused Step 3 to deliver only two of the three pipelines, since the cosmic ray pipeline is far from done. Currently the imager pipeline includes DP^3, imager, sourcefinding and writing the sources to a database.