Minutes of Meeting LOFAR Software

Date:	2009-01-07
Next meeting:	2009-01-14 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, Sven Duscha, Jan-David Mol.

Remarks previous minutes

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Announcements

- Field preparation is on a hold due to the weather conditions.
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Action item overview

ID	Date submitted	Description	Owner	Planned date	Status
77	20081217	Make a drawing of the required test environment for development.	Andre	20080101	Closed

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Progress

Stations (André):

Achieved since last meeting:

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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:
- Together with the pulsar group, five different beamforming modes have been defined. Pseudo code describes exactly what is necessary.
- Jan-David is up to speed implementing the beamforming modes. The delta delays for all pencil beams look correct. Currently he is busy generalizing the communication mechanism to transport data from the compute nodes to the storage nodes via the IO nodes. Software of the standard imaging mode is reused for this.
- John has been busy to investigate how the beamforming can be mapped efficiently on the BG/P.
- Chris and John did kernel experiments which support collective network interrupts as well as TLB mappings.

Problems / current activities:
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Next actions:
- Continue with LOFAR20

Offline pipeline (Ronald):

Achieved since last meeting:
- Imager and DP^3 are integrated in one pipeline.
- Offline documentation is written.
- Discussions are held about the LSM/GSM and source finding methods together with the Amsterdam people.
- A meeting was held with Ruud about which metadata is necessary for the offline processing. It was decided that only the information of broken signal paths are send to the offline processing. The applied beamformer weights are stored in a database.

Problems / current activities:
- 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.

- A meeting will be set up about the GSM and about source finding. Bart Scheers will look into the global sky model and John Swinbank will look into Duchamp.
- Online bandpass correction verification by Pandey waits for station data. An observation of 48 hours was defined. The observation failed this weekend. We have to postpone it to the next step together with the global bandpass.

Next actions:
- Continue with LOFAR20

SAS + MAC + SHM (Ruud):

Achieved since last meeting:
- Max has left the project. Currently SHM reports a lot of failures while the hardware seems to work properly. The reason for this is that the margin are set to tight. In the next step Arno Schoenmakers will try to look into this to fine tune the SHM algorithms.
- Pieter has installed the temperature controller to CS010. From field measurements the controlled cabinets have a much higher temperature stability as expected. The temperature controller work was more than anticipated, which delayed other tasks of Pieter.
- Ring splitter control waits for info of Eric.
- LISP software is rewritten to Python. A small difference in LSM algorithm resulted in small differences with the original LISP software. This is due to the fact that Michiel wrote his own LSM algorithm. This one will not be translated to Python.
- The work required for the coordinates conversion to ITRF waits currently on the ACMserver which needs to be modified. After that the Beamserver needs to be modified together with Michiel Brentjens and finally the Calserver needs to be validated with Stefan.
- Based on the extra work required, the MAC/SAS tasks regarding the central processing is shifted to the next step.
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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 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.

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Table round

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