Minutes of Meeting LOFAR Software

Date:	2009-10-14
Next meeting:	2009-10-14 9:15-10:15
	Multimedia room
Present:	
Andre Gunst	Yes
Ronald Nijboer	Yes
Ruud Overeem	No
John Romein	Yes
Michael Wise	No

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

- First bullet in station section (Stefan): a projection to zenith is a baseline restriction and certainly usable.

Announcements

- Currently there is polarization busy week. Next week there is an imaging busy week again.
- All VLANs of Effelsberg are now defined on the whole link.
- Pieter and Henri have been in Effelsberg to upgrade the TBBs, validate the HBA antennas, install an environment controller and install a new LCU.

Action item overview

ID	Date submitted	Description	Owner	Planned date	Status
87	20090812	Can the LOFAR software be public available, just like the USG software. Yes it can if there is a decent header about how the software may be re-used for other purposes (e.g. referring to Astron). According to Marcel, Ger can make a script which adds a header before all sources. Hence this action stays open. Header is ready. We have to take a look if our license conflicts with boost and blitz.	Andre via Ger v. D.	20090915	Open
88	20090825	Migrate the USG repository on the LOFAR repository server.	Michael via Lars	20090915	Open
89	20091015	Scale up the benchmark numbers of BBS and the imager.	Ronald	20091030	Open

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Progress

Stations (André):

Achieved since last meeting:
- Ring splicer has been tested. Now we are ready for CEP tests with it.
- The LBA station calibration cannot be put on the fields before the coordinate system is moved to ITRF (we do not want to do things twice).

Problems / current activities:
- Stefan is busy together with the beam team to figure out the antenna coupling and use this information to make a more accurate beam model.
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Next actions:
- Continue with LOFAR20

OLAP (John):

Achieved since last meeting:
- Yesterday there was a discussion about the second transpose (necessary for the UHEP and pulsar mode) for getting the subbands together again. For this changes are necessary in the code. The way we sent data from the compute nodes to the storage nodes needs to be different.
- New data storage writer was tested. There were missing time slots which could not be handled by DP^3. This is now dealt with with an exception instead of a segmentation fault.

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

Offline pipeline (Ronald):

Achieved since last meeting:
- Ger made a Python framework to apply direction dependent corrections (per facet) between BBS and the imager.
- To be done for MSSS: Facet correction, beam model (worst case: analytical model), ionospheric model (SPAM method can be used for the first 10 stations to determine the model), bandpass correction, A-team subtractions (source models should be identified first by astronomers), clock correction

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

SAS + MAC + SHM (Ruud):

Achieved since last meeting:
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Problems / current activities:
- Both the BF data writer and TBB data writer are not ready for integration into MAC/SAS in this Step. BF data writer is more ready now and Michael takes the action to discuss with Alwin how to proceed getting this under MAC/SAS.
- 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:
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Problems / current activities:
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Next actions:
- Continue with LOFAR20

Software integration

Achieved since last meeting:
- Alpha release of Cmake has been released.
- Build environment is not working for OLAP yet because of the MPI environment.

Problems / current activities:
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Next actions:
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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.
45	20090813	No connection from the Dwingeloo test environment to Groningen is necessary anymore.
46	20090825	Create a Bugzilla environment for the USG software.
47	20090825	Use one subcluster per group, contactpersons and guidelines defined (see section Software integration).
48	20090909	Use the filter range names of MAC/SAS for the ICDs and the archive model.

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Holidays

- Ruud: 22-30 October 2009
- Andre: 28 October – 31 October SKA meeting

- Andre: 2 November – 10 November holiday
- Ronald: end of November

Table round

- Andre: When can we do serious benchmark tests with the pipeline with the new hardware? Accordingly these need to be scaled up for full LOFAR. These numbers are required for the specification of the rest of the hardware in Groningen. Ronald: Currently still bottle necks are solved in DP^3 which speeds up DP^3 significantly. Although for BBS and the imager the numbers are already usable. Ronald will scale these up.
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