Minutes of Meeting LOFAR Software

Date:	2007-11-21
Next meeting:	2007-11-21 9:15-10:15
	Minnaert room
Present:	
Andre Gunst	Yes
Ronald Nijboer	Yes
Ruud Overeem	Yes
John Romein	Yes
Michael Wise	No

cc: Arthur Coolen, Jurjen Sluman, Pieter Donker, Chris Broekema, Martin Gels, Joris v. Zwieten, Marcel Loose, Adriaan Renting, Ger van Diepen, Max Avruch, Peter Boonstoppel, Michiel v. Haarlem, Jan Reitsma, Ger de Bruyn, Arno Schoenmaker, Hanno Holties, Corina Vogt, Jan Noordam, Joe Masters, Lars Bähren, Dion Kant, Johan Hamaker

Remarks previous minutes

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Announcements

* The OS on all machines of LOFAR will be: Kubuntu 7.10 desktop 64 bit, except for the MAC/SAS machines (PVSS is not supported under Kubuntu) and the BG/L. On the MAC/SAS machines Redhat Enterprise or Fedora will be used and on the BG/L SUSE.
* During a DMT was decided that all money we will get extra will be invested in more small (half) stations instead of larger (full) stations. Hence, the upgrade possibility for the stations with more electronics is not necessary. Money can be saved to make the stations not upgradeable.
* All stations will consist of a HBA field with 48 tiles and a LBA field with 96 antennas, wherein 48 antennas are connected to the LBL input and 48 to the LBH input of the RCU. The consequence is that only 48 Low Band Antennas can be used at the same time. Either, LBL or LBH or in between alternative configurations (a fixed set).
* The HBA field in the core stations will be split in two fields of each 24 tiles. It is possible to correlate between those tiles in one such core station. With other words the core stations are split in two in the HBA mode. The way to realize this in hardware is in investigation by Gijs Schoonderbeek and Eric Kooistra. A prototype will be made to make a ring splitter.
* In the core a superstation will be realized, where 6 stations are concentrated on one big "terp".
* The LBA configuration is decided and fixed now.

Action item overview

ID	Date submitted	Description	Owner	Planned date	Status
40	20070710	Define stappen plan for the pulsar mode.	Michael	20070917	On a hold
45	20071030	Definition TBB control framework (so that the users can hook up their dedicated software in it). Currently defined in code and will be written down.	Ruud	20071113	Closed

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Progress

Stations (André):

Achieved since last meeting:
- Currently one HBA tile is operational in Exloo
- Five tiles have been sealed and will be shipped to Astron next week.
- Currently only one TBB trigger is generated and has to be released again before the next trigger can occur. When this is validated by Andreas Horneffer, the release mechanism will be omitted. Then, multiple triggers after each other can be generated.
- After a discussion with Stefan Wijnholds, was decided to include the functional station calibration and validation in Step 4, while the implementation on the LCU is put in Step 5.

Problems / current activities:
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Next actions:
- Step 3

OLAP (John):

Achieved since last meeting:

- A first experiment between the test environment in the lab and Exloo was done. The correlation was succesfull however no fringes were detected. It appeared that the GPS was not connected to the test environment. From this test can be concluded that the input cluster can be removed completely.

Problems / current activities:
- Peter and John are busy to track down bugs in the ZOID software. This has a high priority since Peter is formally not under contract anymore.

- John is busy to prepare for Step 4, where multi beaming is required.
- Martin is busy to put the code without input cluster under the control of MAC/SAS.
- There is a bug when parset files are read in by the compute nodes. When reading in a BG/L parset file sometimes a fragment of the OLAP parset file is read in as well.
- Testing is still going on to finalize the decision to remove the input cluster. Everything looks good. Step 3/4 should be updated to include removing the input section. These are new machines and will presumably become more computer nodes for the offline cluster.
- Work for Step 3 is essentially done.
- Post CS1: In a plot of RMS against frequency, one of the subbands shows a periodic variation. It is unknown what causes this, and this has to be investigated / solved.

Next actions:
- Finishing up Step 3 activities

Offline pipeline (Ronald):

Achieved since last meeting:
- Binning flagger is implemented and ready to be validated.

Problems / current activities:
- Multi-node imager will run in Groningen 30 November 2007
- Testing of the fitting in the UV plane.
- Busy profiling on new AMD and Intel machine.
- Everything on track for Step 3.

Next actions:
- Continue with step 3 activities.

SAS + MAC + SHM (Ruud):

Achieved since last meeting:
- All modifications of the Navigator are done by Arthur and ready. They will be tested from now on.
- Prototype of the TBB monitor is running, but not tested yet.

Problems / current activities:
- TBB control is ongoing (behind schedule due to support of the TBB driver and tests in Effelsberg).

Next actions:
- Step 3.

User Software (Michael):

Achieved since last meeting:
- First version of TBB writer is completed and under test by Joe. After these tests are done, the software will be build and run on a storage machine.
- PyBlobDetecionSourceModelilling

Problems / current activities:
- Lars is busy with changes in the CR pipeline in order to use the standard time series as generated by the TBB writer. These modifications took a bit longer than expected due to some undocumented differences between the CASA/AIPS++ APIs.
- Ger de Bruyn reported some performance issues with using the pydal tools. (Note added post-meeting: Casey sat down with Ger and was unable to replicate the problem. It may have been related to remote display issues.) Some profiling is planned after Step 3 activities are complete.

Next actions:
- Step 3.

Software integration

Achieved since last meeting:
- Subversion is again operational. The next step is to make a procedure how to include version numbers in the executables.

Problems / current activities:
- A build environment is required with Kubuntu. Next year a new machine can be ordered for the build environment on the LOFAR17. In the meanwhile André has also a LOFAR machine available to be used.

Next actions:
- Step 2+: 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.

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.

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Table round

- André: Are there already tests done with the SAN access in the storage nodes. Answer: These tests have been done by Harm Paas of the RUG and Chris will ask for the performance numbers of these tests.