Minutes of Meeting LOFAR Software

Date:	2010-03-03
Next meeting:	2010-03-10 9:30-10:30
	Multimedia room
Present:	
Andre Gunst	Yes
Ronald Nijboer	Yes
Ruud Overeem	Yes
John Romein	Yes
Michael Wise	Yes
Harm Munk	Yes
Hanno Holties	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, Johan Hamaker, Sven Duscha, Jan-David Mol, Teun Grit, Alwin de Jong, Frank Breitling, Anastasia Alexov, Jason Hessels, Joeri van Leeuwen, John McKean, George Heald.

Remarks previous minutes

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Announcements

- Stefan defended his thesis yesterday.
- Sven Duscha joined the BBS team.
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Action item overview

ID	Date submitted	Description	Owner	Planned date	Status
99	20100113	Report on release management. For station software a procedure is established but not written down yet.	Harm	20100127	Open
104	20100224	Verification test suite should be defined to test the storage manager.	Ronald	20100315	Open
105	20100303	Change definition HBA_ONE and HBA_TWO to HBA_ZERO and HBA_ONE.	Hanno, Ruud, Michael	20100315	Open
106	20100303	Find solution for broadcasting stations in case the BG/P IO nodes fall out.	Ruud, André	20100315	Open
107	20100303	Issue tracker decision.	Hanno	20100315	Open
108	20100303	Include USG software in the daily build.	Harm	20100315	Open

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Progress

System Integration

Achieved since last meeting:

- John is busy supporting the 2000 observations/week option in the BG/P. Furthermore he assists the observatory.
- If one IO node is down than the whole partition is gone. This happened this weekend and is something we have to live with. The consequence is that after maximal x hours all the stations are broadcasting their data and the switches are flooded. We have to prevent this in some way. This will be discussed more in detail after the meeting. The failing IO node was caused by
- ITRF beamserver progress: Two new antenna position files are received and tests have shown that the results are not the same.
- CalServer progress: The build environment on the new machine is working. Matlab will be installed as well. This is necessary to link in the libraries from Stefan.
- Hanno: Changes in definitions which are used in various parts of the system should go via this meeting. All agree with that.
- Currently the naming HBA_ONE and HBA_TWO is used to identify the two "ears" in the core stations. This is coded in (the scheduler), MOM, SAS and the archive. However in the log files ring 0 and ring 1 are mentioned. For consistency reasons we decide to change this to HBA_ZERO and HBA_ONE. Next action: change the ICDs (Michael) and change MOM, SAS and the archive (Ruud, Hanno).
- A new physical SVN server will be used. The current one is obsolete. Two new webservers for the observatory are installed and this one will also be used as SVN repository. This is a good moment as well to migrate the USG repository on it.
- Pieter finished the coordinate database. You can now read in the files of Michiel Brentjens, port them in the database and calculate the new antenna position files. This can be installed on the production machines.
- Pieter updated the firmware of the environmental controllers. He is now capable of making a correction of the humidity sensors.

Problems / current activities:

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Next actions:

- Solutions for the high station temperature in the summer are under investigation.
- A temperature sensor will be installed in the concentrator node as well.

Imaging Pipeline (Ronald):

Achieved since last meeting:

- John Swinbank has started to integrate the new version of DPPP (NDPPP) into the pipeline.
- Joris worked on the calibration solutions. Now the same solutions as CASA are achieved.
- A sky model meeting was held: this was basically held for defining the next step. The pipeline extracts a subset of the skymodel that is relevant for the observation and takes an ASCII file which describes the local skymodel. The pipeline creates this automatically and BBS reads this in.
- The status of the integration of SAS/MAC/MOM is in progress. Nico has started preparing MOM for this.

Problems / current activities:

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Next actions:

- Focus on the minimal required tasks for MSSS.

Pulsar Pipeline (Michael):

Achieved since last meeting:

- Alwin defined a simple UDP capture procedure. This is less robust but ok for the time being.
- A UK developer team and Bonn going to work on a more robust version of the UDP-TCP conversion program. They will first look at the IO node program used on the BG/P. The DAL will be enhanced with this version when this is ready.
- Lars and Anastasia are working on performance tests: how to efficiently store the data.
- Ken Anderson is still working on a single threaded version.

Problems / current activities:

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Next actions:

- Implement second transpose operation.
- Update BF datawriter.
- Integration of pulsar beamformed observation in MOM via a Parset from SAS.
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VHECR Pipeline (Michael):

Achieved since last meeting:

- Lars has been working on the interface library. The ability to create a file and a header.
- Today there is another meeting.
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Problems / current activities:

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Next actions:

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Infrastructure (Harm)

Achieved since last meeting:

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Problems / current activities:

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Next actions:

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User Data and Archive (Hanno)

Achieved since last meeting:

- There were some issues to ship data to Amsterdam. This has been solved now.
- Currently we had Grid client issues. This has been discussed with Fokke (CIT). Now we are limited by disk access performance again. The raid configuration in combination with the network (10 G cards) is the bottle neck. It should be possible to fix this.
- Next week the identity management will be worked out more thoroughly.
- Marcel started to look in getting the LOFAR software working on Grid.
- Still connected with Juelich. A sanity check for the data challenge with both Amsterdam and Juelich will be done.

Problems / current activities:

- Determine where data is stored (what data is on which machine) and from there we can ship it to Amsterdam. The inventory is made.
- CEP datamanagement/uses. For a large observation we need a lot of storage nodes (half of them). Rethink the subcluster assignments. Antonis will come with a

solution. The current suggestion is to assign all subclusters for production if an observation requires so. The rest of the time it will be used by the specific KSPs.

- Resolve open issues with the archive. This has been solved now.
- A quick look at Juelich: data transport protocol is now working yet. Although there are still some communication problems.
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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.
49	20100116	HBA beam pointing: we decided that one observation is prime and determines the HBA beam. The other observations will be ranked. An additional field for the HBA beam pointing can be set. If this field is not set, then an average of all digital beams

		will be made within the prime observation.
50	20100303	Changes in definitions which are used in various places in the system will be decided in this meeting.
51	20100303	HBA_ONE and HBA_TWO will be renamed to HBA_ZERO and HBA_ONE for consistency reasons.

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Table round

- Michael: We need an issue tracker soon. Antonis is pushing this, but Hanno will push as well. We need to decide before 15 March 2010 (action).
- The USG software should be integrated in the daily build. Arno will take care of this and prioritize this with the rest of his activities.