Minutes of Meeting LOFAR Software

Date:	2010-03-17
Next meeting:	2010-03-31 9:30-10:30
	Multimedia room
Present:	
Andre Gunst	Yes
Ronald Nijboer	Yes
Ruud Overeem	Yes
John Romein	No
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

- About the changes for HBA_ZERO and HBA_ONE: during the meeting there was mentioned this was scheduled for 22/3. Offline of the meeting was decided that Arno Schoenmakers will coordinate this.
- The previous bullet initiated more discussion and based on that we also decided to change HBA_BOTH into HBA_DUAL (using two HBA ears independently) and add HBA_ALL to indicate both HBA fields will be added at station level (so treated as one field).
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Announcements

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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. This is now on the Wiki (under engineering and then software).	Harm	20100127	Closed
104	20100224	Verification test suite should be defined to test the storage manager. Ger and Chris are asked to do this.	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	Ruud, André	20100315	Closed

		stations in case the BG/P IO nodes fall out. The IO node MAC addresses are implemented in the switch. Harm writes down a procedure. Pieter is changing the RSPDriver with a command to switch off the data stream.			
107	20100303	Issue tracker decision. Bugzilla (developers), Craft (system and hardware issues), science support wants to make use of the LOFAR observation tracker. For the user software the favor is for Bugzilla as well. Michael will talk to Antonis to see if this is really what we want.	Hanno/Michael	20100315	Open
108	20100303	Include USG software in the daily build.	Harm	20100315	Open
109	20100317	Write up procedure what should happen if a IO node fails and needs to be replaced.	Harm	20100331	Open
110	20100317	Currently we have station beams and pencil beams. In the ICDs this will be called primary pointing direction and beam. Is this the right naming convention?	All	20100331	Open

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Progress

System Integration

Achieved since last meeting:
- Observations failed sometimes after 16 seconds. Something went wrong in the 160 MHz mode (200 MHz was ok). This has been nailed down now.
- John wasted a lot of time in looking for bugs which turned out to be configuration errors. Hence things should be documented more. However we decide not to set this as priority and accept this as a risk we take.
- Ruud have been done testing together with John Swinbank for the pipeline integration in MAC. After one day, MAC could send all the commands to the Python environment and got back all the answers. Starting and stopping an observation worked as well. The second day John added some extra control within the Python pipeline environment which was not tested yet. The files the pipeline need to process are not yet communicated. This can be done via MOM according to Hanno. The static meta data goes from MAC to Python. The runtime metadata is still not in the database and can not go to Python. John wrote up the actions what to do next.
- Arthur works on a multi user server for the SAS server. During the last week there were some problems with simultaneous queries on the same server.
- ITRF beamserver progress: nothing done. In two weeks this will be continued (Michiel is not here for the last weeks and Ruud is going to Manchester next week). This is still urgent!
- In CalServer: Matlab is installed on the new development system.

- There was detected a short circuit in two phases of the power lines to CS030. This is fixed now.
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Problems / current activities:
- On several stations the Rubidium is not always in lock. In appears that the number of satellites received at those stations is lower on average than other stations. The exact cause is under investigation.
- Beam names: currently we have station beams and pencil beams. In the ICDs this will be called primary pointing direction and beam. Is this the right naming convention? To be discussed during the next meeting.
- Changes going on in MS ICD should be decided also in this meeting.

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:
- Currently there is a dress rehearsal busy week. We are currently not able to observe.
- Adriaan used data from the previous data week and putting it on the archive and get it back. The next step is to do this on large data sets.
- Ronald got a spreadsheet from Tim to calculate the performance of imaging.
- NDPPP was being tested by David Rafferty.
- In BBS Joris is working on the UVW issue. Not all issues are tracked down yet. This can be caused by the storage manager. We should wait for Chris to continue (end of March).
- Faraday rotation has been implemented.
- The ionospheric models have been tested on Cygnus and 3C96. Clock correction is also in. Next step doing this on multiple fields.
- Control BBS should be revisited by Marcel. How to deal with failing processing nodes and the use of the global solver.
- LOFAR datasets will be sent to Australia to run through their imager test suites.
- LWimager is the CASA imager. Build on the same code base, but different versions. Which imager are we going to use: Cimager! This is the only one which scales up.

Problems / current activities:
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Next actions:

- Focus on the minimal required tasks for MSSS.

Pulsar Pipeline (Michael):

Achieved since last meeting:

- UK people are busy decoding the "offline beamformer datawriter". The think a first implementation will be there in one month. The people in Bonn will do the testing.
- Lars finalized the DAL with the beamformed data files in a new format.
- A2 is busy with performance tests.
- Alwin can call the DAL library and can create data files.
- Integration of pulsar beamformed observation in MOM via a Parset from SAS is ongoing.
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Problems / current activities:
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Next actions:
- Implement second transpose operation.
- Update BF datawriter.
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VHECR Pipeline (Michael):

Achieved since last meeting:

- The cosmic ray people will be busy rewriting some lower level functions (post processing parts) which will delay the finishing date of the VHECR pipeline.
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Problems / current activities:
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Next actions:
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Infrastructure (Harm)

Achieved since last meeting:
- Release procedure have been writing down.
- Preparation of the busy week took a lot of time.
- For the next busy week we need a stable software before the week starts.

- 12 April meta data busy week. Then we have two busy weeks next to each other.

Problems / current activities:
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Next actions:
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User Data and Archive (Hanno)

Achieved since last meeting:
- The speed at the Lexars is still an issue.
- 250 small datasets have been transferred.
- Identity management: half April we are able to transfer user accounts and project information through the archive.
- Koen Schrijvers is visiting us today in getting BBS running on Grid based systems.
- Second half of April an archive meeting will be held with our international partners.
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Problems / current activities:
- 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.
52	20100317	Change HBA_BOTH into HBA_DUAL (using two HBA ears independently) and add HBA_ALL to indicate both HBA fields will be added at station level (so treated as one field).
53	20100317	The software should be documented more. However we decide not to set this as priority now and accept this as a risk we take.
54	20100317	The CImager will be the imager used in LOFAR. This is the only one which scales up.

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Table round

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