

Minutes of Meeting LOFAR Software

Date:	2010-05-19
Next meeting:	2010-05-26 9:30-10:30
	Multimedia room
Present:	
Andre Gunst	No
Ronald Nijboer	Yes
Ruud Overeem	Yes
John Romein	Yes
Michael Wise	Yes
Harm Munk	No
Hanno Holties	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, 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

- The pulsar group has reviewed the beamformed data naming convention. Additional discussion is needed to ensure consistency with general LOFAR nomenclature for beams. A meeting with a few individuals outside of the coordination meeting will be held to finalize the convention.
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Announcements

- The pulsar group began tests of the new Superterp single clock.
- An imaging busy week is scheduled for May 31-Jun 4 to focus on making images for the June meeting and LOFAR Opening.
- The Queen will officially open LOFAR on June 12, 2010.
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Action item overview

ID	Date submitted	Description	Owner	Planned date	Status
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. Michael talked to Antonis and Michael got permission to setup Redmine. John S. will give a demo to Antonis, Hanno, Harm and Michael.	Hanno/Michael	20100315	Open
113	20100414	Define end to end quantitative tests for the imager pipeline.	Ronald	20100430	Open

117	20100512	Decide on beamformed data naming convention.	All	20100519	Open
118	20100512	Make list of station – BG/P assignments for rack 1.	Andre	20100519	Open
119	20100512	What is the procedure if rack 0 fails and we like to use rack 1? This has to be discussed with CIT.	Andre	20100519	Open
120	20100512	Make LOFAR opening demo script	Andre	20100519	Open
121	20100512	Get a copy of the LOFAR opening invitation list.	Andre	20100519	Open
122	20100519	A meeting will be organized to finalize beam formed data naming convention. Attendees: J. Hessels, A. Alexov, L. Bahren, J.-M. Griessmeier, A. Renting, H. Holties, R. Nijboer, R. Overeem, A. Gunst, M. Wise. (Anyone else?)	Michael	20100526	Open

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Progress

System Integration

Achieved since last meeting:

- The shared clock on the Superterp seems to be working. Observations taken during the last pulsar busy week showed phase differences with both a frequency dependent and independent component. The frequency dependent component was apparently due to differences in cable lengths to the concentrator node. A patch was implemented and seems to be working well. The will be rolled out on the system immediately. The frequency independent phase shift is still being investigated.
- Jan David will extend his leave for the foreseeable future.
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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:

- Tim Cornwall has made some first test LOFAR image with the cimager. There have been a number of updates to the pre-conditioning step in the imager. This

step is roughly the equivalent of determining the weighting scheme. More tests are underway to get a better handle on processing needs for imaging.

- Ger de Bruyn has been working with Maixm on the facet-based correction scheme. This scheme should be ready for implementation.
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Problems / current activities:

- Control BBS should be revisited by Marcel. How to deal with failing processing nodes and the use of the global solver. Needs to be prioritized. Becomes an issue when we process with lots of nodes.
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Next actions:

- Focus on the minimal required tasks for MSSS.

Pulsar Pipeline (Michael):

Achieved since last meeting:

- A pulsar busy week was held. Priority was given to testing the new single Superterp clock.
- The set of tools for the offline pipeline is essentially complete at this point.
- Ken is continuing work on the pipeline integration.
- Lars has finished the file creation layers in the DAL for creating beam-formed data files in the new format. These layers are ready for use.
- Lars reviewed the existing code for the bf2h5 data writer. The code is not well documented and needs to be cleaned up before being taken up by a new developer. He made some additions to the code to add a minimal layer of documentation pending more extensive comments by Alwin.
- The Oxford group has a first version of the offline UDP/TCP I/O library ready. It is still being tested but they have made the current version of the code available. Lars has begun reviewing the code to assess the level of effort required to integrate it into the BF, TBB, and DS data writers
- Anastasia and Lars reviewed the functionality of the STSDAS/HEASARC parameter interface library (PIL). This library is being considered for use in the standalone tools to provide a well-defined and standard method of handling parameter files.
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Problems / current activities:

- Need to identify a new developer for the BF data writer as soon as possible.
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Next actions:

- Implement second transpose operation.
- Update BF datawriter.
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VHECR Pipeline (Michael):

Achieved since last meeting:

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Problems / current activities:

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Next actions:

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Infrastructure (Harm)

Achieved since last meeting:

- We have to work with releases. All of us agree. What is the goal of each release. What is the procedure to get the software in the release. Are bug fixes modified on the trunk or on the branch or both. As soon as the procedure is clear than this should be followed. The advantage is more robust software with clear functionality add ons. However the functionality will be available later.
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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:

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Problems / current activities:

- The archive ID management is needed soon. The user administration layer should be functional at the end of this week.

- There has been some progress on metadata transport in the system. MoM now knows about pipelines. A compress pipeline is more or less ready.
- The ability to kick off pipelines is still under construction. Delayed a bit due to various opening related activities.
- Adriaan is working on a report on the Lexar performance. Should be ready today.
- Data management issues being investigated for upcoming CEP purchase.

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 μ Stations/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.
55	20100331	The name HBA_ALL will be replaced by HBA_JOINED.
56	20100407	It was decided earlier to have only one pointing per station beam (fixed in time).

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Holidays

Ruud: October or November

Ronald: 17 June – 9 July

Andre: 2-27 August

Table round

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