

Minutes of Meeting LOFAR Software

Date:	2010-01-13
Next meeting:	2010-01-20 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

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

- In the station section was written “CalServer being ready end of January”. This should be the beamserver. Thereafter the calserver will be re-developed.

Announcements

- Harm Munk is participating in these meetings as well to represent the observatory.
- A proposal of Ralph Wijers from the transients KSP project will be funded (3.5M). This money will be used for people but also LOFAR hardware.
- A meeting was held about software releases. As a result a clear procedure/wow (way of working) will be defined for this.

Action item overview

ID	Date submitted	Description	Owner	Planned date	Status
89	20091015	Scale up the benchmark numbers of BBS and the imager. First estimations have been made. Furthermore Ronald wrote a document including all the results and assumptions. A meeting will be organized to discuss this further.	Ronald	20091030	Closed
91	20091118	Setup cosmic ray pipeline meeting. There is a meeting at 10 January 2010 internally for the cosmic ray people. Lars will setup a first meeting.	Michael	20091215	Open
95	20091216	Organize metadata meeting (static and dynamic) from a users perspective. Hanno organized it already at next Tuesday.	Michael	20100115	Open
96	20100113	Organize meeting about the	André	20100120	Open

		benchmark results of the imaging pipeline.			
97	20100113	Should more people of the observatory be participating the standard imaging pipeline meetings?	Harm	20100120	Open
98	20100113	Organize a meeting to decide on the repositories structure and issue/bug trackers for LOFAR.	André	20100127	Open
99	20100113	Report on release management.	Harm	20100127	Open

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Progress

Stations (André):

Achieved since last meeting:

- Its now functionally clear how the HBA calibration should work. Stefan will initiate a meeting to decide if the proposed method is acceptable to implement.
- Actions are ongoing to get the dipole information centrally available. This can be done on the short term by a couple of modification. However in parallel we have to think of a long term solution for the MS data format.

Problems / current activities:

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Next actions:

- Continue with LOFAR20

OLAP (John):

Achieved since last meeting:

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Problems / current activities:

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Next actions:

- Continue with LOFAR20

SAS + MAC + SHM (Ruud):

Achieved since last meeting:

- Ruud is busy with the implementation of the new beamserver. First version is working for at least one LBA beam. He is still using the ACM server (old method). Tests without the ACM server seems to work as well now. The HBA stuff must still be added.

- Pieter enhanced the RSP Driver for some extra firmware commands which were already included in the firmware.
- Yesterday Pieter modified the CalServer to switch on the HBA in small groups (then the load on the power supplies is gradually increasing). This introduces of course latency. This can be prevented by switching on the HBAs beforehand.
- As soon as the beamservers are ready we need ITRF coordinates for all stations. These need to be centrally available. Pieter will work on this.
- Tomorrow the chain MOM-SAS will be tested.
- An upgrade of the BG/P log stream will be necessary and done.

Problems / current activities:

- Look into enhancing the temperature control.
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Next actions:

- Continue with LOFAR20

Imaging Pipeline (Ronald):

Achieved since last meeting:

- John McKean and George Heald are invited in this meeting now as well to hold close contact between users and development. Adriaan is representing the observatory in these meetings. The question is if this is sufficient. Harm will think about this in the coming week.
- The imaging pipeline software is stable now.
- Ronald scaled the benchmarks to performance numbers for half and full LOFAR and wrote this up in a document.
- It is now possible to run multiple times DPPP without writing the MS in between.
- BBS is currently under test by various people now.
- Ger and Joris experimented with the facet based correction. Additional tests should be done by the users. However the performance and quality are far from sufficient right now.
- Gaussian components are included and work in BBS. Shapelets will not be implemented currently.
- Image plane deconvolution is necessary in the imager. This is probably already supported. This is under investigation.
- A bug has been fixed in the Cimager concerning the facet issues.
- Framework for standard imaging pipeline is now also used for the pulsar pipeline.

Problems / current activities:

- A beam model and ionospheric model is necessary to connect to that.
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Next actions:

- Focus on the minimal required tasks for MSSS.

Pulsar Pipeline (Michael):

Achieved since last meeting:

- Anastasia, Lars and Ken finalized the beamformed ICD.
- A pulsar pipeline meeting was held to track overall progress. One of the urgent tasks to accomplish is the second transpose operation and update the BF datawriter.

Problems / current activities:

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Next actions:

- Implement second transpose operation.
- Update BF datawriter.

VHECR Pipeline (Michael):

Achieved since last meeting:

- Software meeting with the cosmic ray software people has been held. This is not a pipeline meeting yet. The last will be setup soon and there the tasks to accomplish and focus on will be defined and ordered.

Problems / current activities:

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Next actions:

- Identify all tasks necessary for getting a basic VHECR pipeline running.

System Integration

Achieved since last meeting:

- The CMake MPI environment does not work properly yet.

Problems / current activities:

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Next actions:

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Infrastructure

Achieved since last meeting:

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Problems / current activities:

- Yet another meeting about the repositories and issue trackers will be organized to decide on the final way of working concerning these matters.

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	20101216	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.

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Table round

- In which section the pipeline non-specific stuff will be discussed? Tasks which are general (for multiple pipelines) will be identified as system issues and an extra section for this will be included in the minutes. Furthermore, things like running pipelines, the metadata flow, infrastructural stuff and archive needs will be written down and discussed as a specific topic.
- Michael: The lack of testing is still not solved yet properly. We need a solution for this! One of the tasks for all the pipelines have to be to define test scripts for the individual pipelines including a standard/golden reference dataset. As soon as those tests are defined, the observatory can run them over and over again when for example a new release comes out.
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